

## **Historic, Archive Document**

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VOL. XVII. NO. 6.

MAR. 15, 1889.

PEACE ON EARTH  
★  
GOD WILL FAVOR MEN



CLEANINGS  
IN

BEE CULTURE

DEVOTED  
TO  
BEEKEEPING

& HOME INTERESTS.

MEDINA, OHIO.

BY  
A. ROOT

TERMS, ONE DOLLAR PER YEAR.

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.



# CALVANIZED WIRE Poultry Netting and Fencing.

The Best Quality on the Market, at Prices as Low as the Lowest.

This shows ACTUAL SIZE mesh of 2-inch No. 19 netting, the kind commonly used for poultry fence. Cut shows the wire a little heavier than actual size.

**ALL "G. & B." NETTING**  
2-in. mesh No. 19, and 2-in. No. 18  
IS WOVEN WITH

**Three-Strand Twisted Selvages,**  
Thus being rendered much  
**STRONGER THAN ALL OTHER BRANDS**  
which have only two-strand selvages. It is also full standard gauge, while some netting in the market is made of No. 19½, and branded 19.

A 16-page illustrated catalogue of netting and fencing will be mailed free on application. This gives cut and prices of the different sizes, and explains how used.

All the netting and fencing sold by us is of the celebrated "G. & B." brand. We guarantee this to be the best in the market, and our prices as low as the lowest. Dealers will do well to write for prices before ordering elsewhere.

#### A FEW OF ITS MANY ADVANTAGES.

It is the cheapest, costing less than 75 cts. per rod for posts, staples, and all. It will last a lifetime, and never needs repairing, because it can't get out of order. Being galvanized after it is woven, it will never rust.

It is easily put up and taken down. Ernest has a roll fastened to light stakes, which he has taken down and set up again in a different location in 15 minutes, when the ground was soft. It can not be

if you choose. This will prevent small chickens from getting through, and makes the fence one foot higher. If you want to make division fences, so as to keep different breeds from the same yard, it is better to have a board at the bottom at least one foot wide, so the fowls can not be gossiping through the wire, and pecking at one another. You will notice that one roll makes a yard nearly 40 feet square, and this is plenty large enough for 20 or 30 fowls.

**COTTAGE LAWN AND GARDEN FENCING** makes the most attractive and best fence. The **WORLD'S WEB-WIRE FENCING** (4-in. mesh) makes the best farm fence. Both are inexpensive. See catalog mentioned above for description and price.



blown down, as the wind goes right through it. On this account you don't need very heavy posts where the fence is used for poultry only. It does not keep out the light and fresh air, so needful to poultry. It is neat and ornamental, and always looks well if properly put up. It is so invisible that fowls can not see the top, and will not fly over. You can see inside as well as if there were no fence at all.

#### HOW TO PUT IT UP.

About one pound of staples is needed for a roll of netting. The posts to hold it should not be more than 10 feet apart, and they should be set in the ground at least 2 ft. for a permanent fence. In putting it on the posts, draw the top selvage tight, and fasten securely with the staples, and afterward draw the bottom down and fasten that. You can put a board a foot wide along the bottom,

#### TABLE OF PRICES.

This netting is made with 2, 1¼, 1, and ¾ in. mesh, of different-sized wire, and from 6 inches to 6 feet wide, and is put up in bales 150 feet long. That most used for poultry fences is 2-inch mesh, No. 19 wire, 4 feet wide, 150 feet long. This makes 600 sq. feet in a bale.

Two years ago we sold 2-in. No. 19 netting, 4 ft. wide for \$6.00 per roll. Last year the price was \$5.00. This year we are down to \$4.50; 5-roll lots, \$4.20; 10-roll lots, \$4.00. For 20 or more rolls write for special prices. While the prices have been coming down the quality has been going up so that the G. & B. brand of netting is now the best made. See cut above. Note the following table of prices:

#### TWO-INCH MESH, NO. 19 WIRE, ANY WIDTH.

Less than a full bale, or any fraction of a bale, 1½¢ per sq. ft. One bale, at 75 cents per 100 sq. ft., or \$4.50 per roll, 4 ft. wide. If one bale is shipped from New York or Chicago add 25 cts. for cartage. More than one bale will be delivered free on board New York or Chicago.

5 to 10 bales, at 70 cts. per 100 sq. ft., or 4.20 per roll, 4 ft. wide.  
10 to 20 " " 66% " " 4.00 " "

We ship from New York, Chicago, or from here, with other goods. If you order netting alone it will usually go for less freight charges from New York or Chicago, because rates can be obtained from those points when they can not from here. We keep in stock only the 2-in., No. 19 wire, 4 ft. wide, and all other widths, weights, etc., will have to go from one of the two other places mentioned.

Three-fourths-inch galvanized staples, for putting up the netting, 20 cts. per lb. It takes 1 lb. per roll.

**A. I. ROOT, Medina, Ohio.**



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## Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—A few black and hybrid queens, 35 and 50 cents. YOUNG G. LEE, Charlotte Harbor, Fla.

## DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretzmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Goold & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb.; C. D. Battey, Peterboro, Madison Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

## REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT &amp; SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

## &lt; ALSIKE. &gt;

WHOLESALE AND RETAIL; BEST OF SEED.

&gt; ALSO GARDEN SEEDS. &lt;

C. M. GOODSPEED, 4tfdb THORN HILL, N. Y.

In responding to this advertisement mention GLEANINGS.

## BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

G. B. LEWIS &amp; CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

1889. Italian Queens. 1889.

For \$1.00 From Jan. till June.

2-4-6d

N. ADAMS, Sorrento, Lake Co., Fla.

## PURE ITALIAN BEES &amp; QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES &amp; CO.,

4-9d

Bryant Station, Maury Co., Tenn.

1889. Italian Queens. 1889.

Having moved 8 miles from Nicholasville to a better location for bees, I will continue to raise queens, and more extensively than formerly. I will have the very best of Italians only. Select tested queens, in April, \$3.00; May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Make money orders payable at Nicholasville. Send for circular.

Address

J. T. WILSON,

4-5tfdb

Little Hickman, Jess. Co., Ky.

In responding to this advertisement mention GLEANINGS.

STRAW  
BLACK  
GOOSE  
RASPB  
DEW  
BERRIES

## CURRENTS and GRAPES.

ADA Large, Late, Hardy, Prolific, Black RASPBERRY, Latest of all in Ripening.

FIRST-CLASS \* PLANTS \* AT \* LOW \* RATES.

THEO. F. LONGENECKER,

Correspondence Solicited. 3tfdb Dayton, Ohio.

In responding to this advertisement mention GLEANINGS.

## JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per ½-bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Gilliland,

Bloomfield, Greene Co., Ind.

EARLY QUEENS. I will send young queens by return mail from this date, Jan. 25, 1889.

5-6d

MRS. A. A. NEEDHAM, Sorrento, Lake Co., Fla.

## MUTH'S

## HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &amp;c., &amp;c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH &amp; SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb



## Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale cannot be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

**WANTED.**—Man and wife to keep house for a farmer (single man). Good house of seven rooms. Two miles from postoffice. No better place in Ohio for bee-keeping or market-gardening. Chance for an enterprising man to handle several colonies, as farm is  $1\frac{1}{2}$  miles long by  $\frac{1}{2}$  mile wide. Four manufacturing towns from 2 to 8 miles from farm, with populations of 500, 2500, 10,000, 25,000. No farm hands to board. 6d R. L. KING, Vanlue, O.

**WANTED.**—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

**WANTED.**—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first. A. F. BRIGHT, 3tfdb Mazeppa, Wabasha Co., Minn.

**WANTED.**—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest. R. H. CAMPBELL, 3tfdb Madison, Morgan Co., Ga.

**WANTED.**—To exchange Italian bees for timber or a "Springfield roadster." L. HEINE, 3tfdb Bellmore, Queens Co., N. Y.

**WANTED!** Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply. S. I. FREEBORN, Ithaca, Wis. 4-7db

**WANTED.**—To exchange one cutter-head, one dovetailing mandrel with saws, one six-inch rubber-belt, 30 ft. long; 50 ft. of three-inch rubber-belt, all as good as new, for bees or bee-keepers' supplies; also one six-inch Pelham fdn. mill. 4tfdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

**WANTED.**—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 4tfdb No. 150 Military Ave., Detroit, Mich.

**WANTED.**—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card. N. A. KNAPP, Rochester, Lorain Co., O. 5678d

**WANTED.**—To exchange 25 new improved chaff hives (Root's pattern), packed ready for use, and about 400 fine brood-combs, at 10c each, for bees. Correspondence solicited. Address 5-6d W. H. SWIGART, Dixon, Ill.

**WANTED.**—All who are interested in thoroughbred poultry to send for my new illustrated circular. Valuable information given free of charge. S. P. YODER, 5-6d East Lewistown, Mahoning Co., O.

**WANTED.**—To exchange my 20-page price list for your name. W. D. SOPER, Jackson, Mich. 5tfdb

**WANTED.**—To exchange Empire State potatoes for bee-supplies or Barnes foot-power combined saw. FRED MYERS, Sharon, Pa. 5d

**TO** exchange, one set of International Cyclopedia, edition 1888, 15 volumes; also one set Scott's Commentary on Bible, six volumes, both in good order, at bargain, for extracted honey or offers. A. H. VAN DOREN, Mons, Virginia, 5-6-7d

**WANTED.**—Some one to rent over 500 acres on shares or money rent, in lots to suit renter, either for farming or gardening; well-drained swamp, fine land for market-gardening, and is from two to eight miles from four cities with populations from 500 to 25,000. For particulars address 6 R. L. KING, Vanlue, O.

**WANTED.**—Situation as apiarist; age 20, 5 years' experience; New York or New England preferred. Also to exchange Cuthbert raspberry-plants or Roth's saw-pliers for supplies. Address E. B. KIBBE, South Cuyler, Cort. Co., N. Y.

**WANTED.**—To exchange for bees fine field-trained setter dog; bargain given; write for particulars. Also \$100 to \$200 worth of bees, queens, empty combs, sections, pure Japanese buckwheat, etc. Who makes us the best offer? 6d C. F. LANE, Lexington, Mo.

**WANTED.**—Situation with some apiarist by single man of 22; 5 years' experience. Address WM. HEYWOOD, Stafford, Genesee Co., N. Y.

**WANTED.**—To exchange early Italian queens for 10-inch foundation-mill, Novice extractor, and supplies. YOUNG G. LEE, Charlotte Harbor, Fla. 6-7d

**WANTED.**—To exchange bees or apiarian supplies for raspberry and strawberry plants. 6d J. B. MURRAY, Ada, O.

**WANTED.**—To exchange family library and Sunday-school books, such as Bible Dictionary, Cruden's Concordance, and juvenile books of all kinds for apiarian supplies, extracted honey, or any thing useful. STEPHEN ROESE, 6d Box 51. Maiden Rock, Wis.

**WANTED.**—To exchange a few full colonies of bees for a small foundation-machine, or thin foundation; also for one-piece  $4\frac{1}{4}$  x  $4\frac{1}{4}$  sections. Good reference. D. F. LASHIER, 6d Hooper, Broome Co., N. Y.

**WANTED.**—A situation with some apiarist. I understand theory, experience limited. Agreements on addressing F. S. FEEKS, 6-7d 1604 Lamine St., Sedalia, Mo.

**WANTED.**—To exchange. Box machine, good as new, groover swing saw; cost \$150. Root 4-piece section machine, \$35; saw bench with arbor, boring attachment, \$40; 20 ft. shafting with hangers; 12 cast-iron pulleys, from 10 to 30 inch; grindstone, cost \$75, for a young sound driving horse. 6d J. B. MASON, Mechanic Falls, Me.

**WANTED.**—To exchange for thin or heavy foundation, or offers, queens or nuclei, one-story Simplicity hives. Send for price list. Mrs. OLIVER COLE, Sherburne, Chenango Co., N. Y. Chenango Valley Apiary. 6tfdb

## HOW TO MANAGE BEES; OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price \$1.00, by mail. In beautiful paper covers. Illustrated. Address 6d W. S. VANDRUFF, Waynesburg, Pa.

In responding to this advertisement mention GLEANINGS.

**AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.** See advertisement in another column.

## ALSIKE CLOVER SEED.

\$8.00 per bushel; \$2.00 per peck; 1 lb. by mail, 25 cts. 6d O. A. TROWBRIDGE, Columbus, Wis.

**WHITE Wyandotte and Houdan Cockerels,** very choice, and strictly pure. Have more than I can use. Will box and ship for \$2.00 each—just half price. Eggs for hatching, 10 cts. each; 40 or more, 6 cts. each; or will exchange for bee-supplies. JAS. EVANS, 6tfdb Box 89, Schaghticoke, N. Y.

**WANTED.**—25 buyers. A 50-lb. sack of nice dried mountain apricots for \$4.00. No sulphur. Send P. O. order on Huenene to C. M. DRAKE, 6d Springfield, Ventura Co., Cal.



## Italian Bees and Queens, Early!

After May 15  
 Imported Ital. queens (1888 imp.)...\$5.50 \$5.00  
 Tested " " ..... 2.25 1.75  
 Untested " " ..... \$1.00; three, 2.75 2.60  
 One-frame nucleus, \$1.25; 2-fr. nucl., \$2.00; 10 or more at a discount. Write for what you want. Ready now to ship. Safe arrival guaranteed; 10 per cent discount on orders booked for 20 days. Make money orders payable at Clifton. 3-8db  
 S. H. COLWICK, Norse, Bosque Co., Tex.

In responding to this advertisement mention GLEANINGS.

## PINELAND & BUCKEYE INCUBATORS!

Indoor and outdoor brooders. Send stamp for circular. PINELAND INCUBATOR AND BROODER CO., 6d  
 Jamesburg, N. J.

## Handel's Swarm Securing and Hiving Funnel

Is warranted to give satisfaction if directions (which go with it) are followed. With it you can bag a swarm clustered 20 ft. or more from the ground, and have them entering the hive in a minute.

Sample by mail, \$1.00; by express, per doz., \$6.00.

6d

JOHN HANDEL, Savanna, Ill.

In responding to this advertisement mention GLEANINGS.

## FOR SALE!

FARM NEAR MITCHELL, DAKOTA.

One mile directly north of the city of Mitchell, Dakota, ½ section of improved land, well watered by Firesteel Creek, well fenced, and good buildings; splendid for stock of all kinds, and general farming. For particulars address J. H. ROOT, 6d  
 Tempe, Maricopa Co., Arizona Ter.

## Sections by the Buckell

My sections will hereafter boxes, so every one buying! worth 15c. Sections only price list.

6-7d

Box 14'

In responding to this adverti

## Sweet Potato

Yellow Jersey stock. Sweet potatoes are low this season. For prices address 6-7d  
 JASPER SMOCK, Terre Haute, Ind.

## For Sale!

Seventeen colonies of bees with supplies pertaining thereto. Will sell any number. Address 6d  
 MIFFLIN RASIN, Jenkintown, Pa.

**POULTRY FENCE.** Galvanized wire netting %  
 ct. per sq. ft. P. DURYEE & CO., 6d  
 68 Vesey St., N. Y.

## IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,  
 Send for our New Catalogue.

4tfdb

OLIVER HOOVER & CO.,  
 Snyderstown, Pa.

In responding to this advertisement mention GLEANINGS.

**BEES.** IF YOU WANT BEES,  
 Please Write for Prices. 4-9db  
 S. A. SHUCK, LIVERPOOL, ILL.

In responding to this advertisement mention GLEANINGS.

Read A. J. King's advertisement on another page of this issue.

**For Sale Cheap.** The apiary (140 stands of bees, hives, etc.), belonging to the estate of Dr. G. W. Young, deceased. A rare opportunity. Address 3-6-7d  
 ALBERT G. YOUNG, Adm'r, Lexington, Mo.



THIS unique little engraving represents Cupid "clothed and in his right mind." It also shows that, when busy with the pretty flowers, he has no use for his bow and arrows. The fiery darts lie unused at his feet. His action

respect reminds us of one trait in the character of a bee; when intent upon the blossoms she has no inclination to use her "fiery dart." There is, however, quite a difference in bees in this respect. Some are far more inclined than others to thrust in the "barbed arrows." In the character of bees there are still other peculiarities. Some are more industrious than others; some cling more tightly to the combs; some cap the honey more white; some work more readily in the supers, etc. There is not space here to enumerate all the characteristics of each variety of bees; but in the

## BEE-KEEPERS' REVIEW

for March much space is given to the discussion of: "Which are the best bees?" The same bee may not be the best for every purpose and all localities. If you are in doubt as to which is the best bee for you, read this number. It will be sent free, and with it will be sent the May and June numbers of 1888.

Price of the REVIEW, 50 cts. a year. Back numbers furnished.

**The Production of Comb Honey** is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,  
 Flint, Mich.

613 Wood St. 6d

In responding to this advertisement mention GLEANINGS.

## EARLY + QUEENS

**ELLISON'S** ALL + ITALIANS  

|                        | Apr.   | May.   |
|------------------------|--------|--------|
| 1 untested queen ..... | \$1.00 | \$1.00 |
| 3 " " .....            | 3 00   | 2.50   |
| 1 virgin " \$6 per doz | 60     | 60     |
| 1 tested " .....       | 3.00   | 2.50   |
| 3 " " .....            | 7.50   | 6.00   |

 2 and 3 fr. nuclei; special rates to dealers. South Carolina is the best State in the South for early queens. The climate is well adapted to queen-rearing, and it takes but 4 or 5 days to send them through the mails to any part of the Northern States or Canada. Prompt shipment and safe arrival guaranteed.  
 W. J. ELLISON,  
 Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

**THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.**  
 See advertisement in another column.

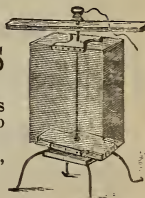


**MELCHER'S**  
 IMPROVED  
**EXTRACTORS**  
 FOR \$2.50.

Territorial rights for sale very cheap  
 Address

J. C. MELCHER,  
 O'QUINN, TEX.

4-10db



In responding to this advertisement mention GLEANINGS.

**READ, C. H. McFadden Still Works WAX.**  
 Good work guaranteed. Send for sample foundation and price list of Italian bees, queens, and wax working.  
 4-10db  
 CLARKSBURG, MONTEAU CO., MO.

CHAS. M. GRIFFING, Shelter Island, Suffolk Co., N. Y. P. Rocks, Light Brahmas, Langshans, Laced Wyandottes. 6d

## HONEY COLUMN.

### CITY MARKETS.

KANSAS CITY.—*Honey*.—Fair demand for comb honey. Extracted, scarce and in good demand at 8 cents for both white and amber.

Mar. 9. CLEMONS, CLOON & CO.,  
Kansas City, Mo.

ST. LOUIS.—*Honey*.—Actually there is no demand, and, with the exception of occasional inquiries, the market is quite dead.

Mar. 9. D. G. TUTT GRO. CO.,  
St. Louis, Mo.

DETROIT.—*Honey*.—Sales continue to be slow; supply about equal to the demand. The quality seems rather poorer than usual. Quotations same as last. *Beeswax*.—There is a little more call for this, but no change in prices.

Mar. 9. M. H. HUNT,  
Bell Branch, Mich.

BOSTON.—*Honey*.—Our market is very strong and active for white honey. We quote: Best 1-lb. comb, 18@20; 2-lb., 16@18. Extracted, 8@9.

Mar. 9. *Beeswax*, 24. Stock on hand very light.  
BLAKE & RIPLEY,  
Boston, Mass.

CHICAGO.—*Honey*.—Honey sells in a small way at 16@17 for the best white comb, in pound sections; all other grades of comb are dull. Extracted is steady at 7@8; off color and dark, 6@7. *Beeswax*, 22.

Mar. 8. R. A. BURNETT,  
161 So. Water St., Chicago, Ill.

CINCINNATI.—*Honey*.—There is no improvement in the market excepting in the demand for dark or extracted honey, which is scarce. We quote extracted honey at 5@8 on arrival. Comb honey at 12@15 in the jobbing way. *Beeswax*.—Demand is good at 20@22 on arrival for good to choice yellow.

Mar. 11. CHAS. F. MUTH & SON,  
Cincinnati, Ohio.

FOR SALE.—Ten 60-lb. cans of first-class extracted honey, at 8c per lb.; has just been liquefied, and will pour readily from cans. Sample for 2-cent stamp.

R. I. BARBER, E. Washington St.,  
Bloomington, McLean Co., Ill.

I still have a few 60-lb. cans of choice light honey that I will sell at \$5.00 per can (60 lbs. net), sample free.

FOR SALE.—1500 lbs. of clover and heart's ease honey, mixed; by the barrel, 7c; in 60-lb. square cans, 7½c, F. O. B. cars at Dixon. Samples free by mail.

EZRA BAER, Dixon, Ill.

## BEES and QUEENS!

### Ready to Ship.

Friends, if you are in need of queens or bees to replace in hives where they have been lost during the winter, I can accommodate you at the following low prices: Italian bees, ¼ lb. 65 cts.; 1 lb., \$1.00. Untested queens, \$1.00; tested, \$1.50. Hybrid bees, ½ lb., 50 cts.; 1 lb., 90 cts. Hybrid queens, 75 cts. Prices by the quantity will be sent on application.

6-7-9-11d

W. S. CAUTHEN,  
Heath Spring, Lancaster Co., S. C.

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.  
See advertisement in another column.

## ITALIAN QUEENS.

Tested, \$2.00, \$1.50, and \$1.25, in Apr., May and June. One untested, May, \$1.00; after June 1st, .75.

Three untested, May, \$2.50; after June 1st, \$2.00.

Three-frame nuclei, with untested queen, May, \$3.50; June, \$3.00; after, \$2.60; with tested queen, add 50 cts. For prices of 2-frame nuclei bees, per lb. and ½ lb., full colonies, foundation, and beekeepers' supplies, write for price list. Address 6-11db JNO. NEBEL & SON, High Hill, Mo.

2 STORY Langstroth B Hives, \$1.00; 1-story Simplicity B-Hives, 45 cts. These hives have frames and covers, all ready for bees, except they are in flat. 6-7d T. A. GUNN, Tullahoma, Tenn.

## NEW YORK CITY COMB-FOUNDAT'N FACTORY

Foundation (natural bottom) as good and cheap as the Best. **Bee-Supplies** of all kinds on same plan. Send for price list before you forget it.

6d

A. J. KING, 51 Barclay-st., N. Y.

In responding to this advertisement mention GLEANINGS.

## LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address

JNO. A. THORNTON,  
Lima, Adams Co., Ill.

Express office, Ursa, Ill.

6-11db

## C. M. DIXON,

Parrish, Franklin Co., Ill.,

—MANUFACTURER OF—

## BEE-HIVES & SUPPLIES

New shop and new machinery. Send for my sixth annual price list, free.

C. M. DIXON.

In responding to this advertisement mention GLEANINGS.

BRADNER'S FACTORY FOR—

## BEE - KEEPERS' SUPPLIES.

—WHOLESALE and RETAIL.

Best Goods at Low Prices. Price List free.

6-8-10d

J. J. BRADNER, Findlay, Ohio.

## I HAVE COME

To say E. Baer will close out the supplies he has on hand, consisting of 100 M. sections, 100 chaff hives, 2000 separators, 4 M. wide frames, far below cost. They are first-class goods, the same as I have sold in the past, and must be sold. Please state what goods you can use,

and I will quote you bottom prices. Also a few choice Italian queens, last year's raising, @ 75 cts. each.

6-11db

EZRA BAER, Dixon, Lee Co., Ill.

In responding to this advertisement mention GLEANINGS.

## Do You Want Knowledge?

Send a postal for price list of International Encyclopedia, 15 vols., royal 8vo, over 13,000 pages, with maps and illustrations. It excels all in comprehensiveness, conciseness, lateness of information, convenience, and cheapness. C. O. D. Liberal discount for freight charges.

A. H. VANDOREN,  
Mons, Bedford Co., Va.

## PRIME & GOVE,

BRISTOL, - - VERMONT.

—MANUFACTURERS OF—

## Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free.

6-8d

## Italian Bees, Queens, and Eggs

From Light Brahma and Wyandotte Poultry. Eggs, two dollars for thirteen.

One untested queen, \$1.00; three for \$2.00.

Price List Free.

Address

6-16d

H. G. FRAME, North Manchester, Ind.





Vol. XVII.

MARCH 15, 1889.

No. 6.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

*Established in 1873.*

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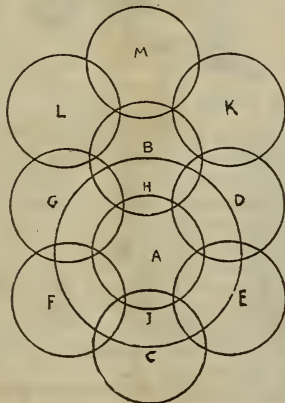
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

# OUT-APIARIES. NO. III. — CONTINUED.

## DISTANCE APART.

**S**UPPOSE the home apiary is located at *a*. With *a* as a center, draw a circle *bc*, the points *b* and *c* being distant three miles from *a*. The first series of apiaries will be located somewhere in the curved line *bc*; and if just three miles apart, there will be six of them, *b*, *d*, *e*, *c*, *f*, and *g*. We may represent the range of the home



apiary by the circle *hi*, and the ranges of the other apiaries by circles of the same size. These circles representing the range of each apiary are arbitrarily assumed, and may be too large or too small, the supposition being that the ranges overlap a little at their outer edges, where the interference will not amount to much. This makes, including the home apiary, a series of seven apiaries. If it be desired

to increase the number, or if the pasturage be such that it is desirable to omit some of these and plant others to one side, we can find the location for one at *k* by finding a point three miles distant from each of the points *b* and *d*. *l* is equidistant from *b* and *g*, and *m* equidistant from *k* and *b*, and, for that matter, from *l*. If we complete two circles at these distances, we shall have altogether 19 apiaries, the furthest of which shall be only six miles from home. I think I'll not carry the thing any further than 19. Let Capt. Hetherington make his own plans. All this looks very easy and very regular on paper. In actual practice it will be quite different.

If you have a township map, cut an equilateral triangle out of card-board, each side of which shall measure three miles on your map, and you can easily lay off your ground, for *a*, *b*, and *d* make an equilateral triangle, so do *a*, *d*, and *e*, and so on.

Marengo, Ill.

C. C. MILLER.

Well, old friend, I think you would get pretty much all the honey, if you covered a field as illustrated above, any way. During an excessive yield there might not be bees enough to consume it all; but I think that, with an apiary every three miles, as you have planned it, there would not be very much wasted any season. During poor seasons I am afraid the two apiaries in the middle, *a* and *b*, might have a pretty tough time of it, especially if all the surrounding apiaries turn in and learn the trade of robbing. By the way, do robber-bees ever go three miles? When I was thinking about getting a locality for queen-rearing, where no robbers would interfere, I thought that, if I could go about a mile and a half from any other bees, it would do very well. In our locality I am pretty certain that bees are not

often found three miles from home at any season of the year. But to cover the ground as you have planned it, I believe I should want as much space between them as three miles; therefore, all things considered, I should say you have got it about right.

### RAMBLE NO. 12.

#### SOURING HONEY, ETC.

Flow, softly flow, by lawn and lea;  
A rivulet, then a river,  
And here by thee will hum the bee  
For ever and for ever.

**N**IG'S feet having been put in proper order, they patted down in staccato time as we hied away again over hill and dale, by quiet forest shades and over babbling brooks, until our course was arrested by what is popularly known as Hall's Mills—a gristmill, sawmill, cider-mill, a potato-hook mill, and, besides all these, a honey-mill, or, in other words, Mr. Hall, not getting filthy lucre fast enough, he thought he saw a great bonanza in the production of honey, and enthusiastically stocked up, with bees, bee-journals, etc. A severe winter loss caused a perceptible decline in enthusiasm. Then a few seasons of short yields caused the abandonment of bee-journals, and a general neglect of both bees and honey; and it is evident that Hall's bees will not hum by this rivulet, "for ever and for ever."

The Rambler found four barrels of honey, rolled out at the rear of the house, under the eaves, with the honey in all more or less sour. This, when extracted, was evidently a good quality of clover honey; but being left in a damp cellar, with bungs out, it had absorbed so much moisture as to make it a damaged article, and it was finally rolled out to make room for cider. If this honey had been stored in a dry room, the quality would not have been injured. The opinion people had of it was fully expressed by Mrs. Hall asking the Rambler if his customers for extracted honey ever wanted any the second time. When told that many customers laid in a supply every fall for winter use, year after year, many preferring it to comb honey, she was incredulous, and said their customers never came for extracted honey the second time; and it was even hard to sell comb honey to those who had used their extracted honey.

As the Rambler went on his way again, the thought uppermost in his mind was the great fact that many people are induced to keep bees who are not and never can be fitted for the business; and the production and sale of honey in many localities is injured more by incompetent local producers than by any other cause. The Rambler does not encourage everybody to keep bees.

#### LUTE VIRGIL.

The sun was just descending behind the western hills, the lovely autumnal tints blending to charm the eye, while the musical notes of the fall cricket rose and fell in rich cadence from orchard and meadow, and the Rambler would fain lay himself down upon some mossy bank and sweetly dream of the hum of bees and a flowery land. The real hard struggles of life were, however, before me; the farmers were coming in from the toils of the day, with sweat-bedewed faces, tattered clothes, and calloused hands that silently spoke of the hard struggle with nature. A few of the "cattle from a

thousand hills" were being herded for the night, and all signs admonished the Rambler to hasten to a haven for the night, under the roof of Mr. Lute Virgil, a noted bee-keeper of Whitehall. Bro. V. lives upon one of the world's byways. We go down through a dark ravine. The stalwart trees on either side, like huge sentinels, seem to guard the rocky pass. When safely down we come out on a broad alluvial bottom, and this is called an interval on Wood Creek. A sharp turn to the right soon brings us to a cosy cottage, under a perpendicular rocky cliff of over sixty feet in height. As it is east of the house, old Sol puts in a late appearance at the Virgil homestead. I found Bro. V. attending to the chores, after the completion of which we adjourned to the house, where I found Mrs. V. and two bright little girls to enliven the home and to make it worth loving and living for. Nearly all of the bee-journals are found upon his table, and we found his preferences strong in particular directions. A worthy man named Doolittle seemed, according to Bro. V.'s dictionary, to be the only writer of much consequence in the apicultural ranks. To sum up the main points of our conversation during the evening, I find it ran about as follows:

"Well, Bro. Virgil, I did not see your hives as I entered your grounds this evening; you must paint them a dark color."



RAMBLER'S DREAM—FOLLOWING IN THE TRACKS OF DOOLITTLE.

"Oh, ho! friend R., I follow nature; take Doolittle's advice, and don't paint them at all. Bees winter better in unpainted hives. I don't believe in any fancy fixings or poetry about hives and yards, etc. I run my bees at the least possible expense. I am after the hard dollars."

"Then I suppose you use the Doolittle hive."

"Oh, no! I use the Langstroth hive; but if I had known as much about Doolittle's plans as I do now, I would have adopted his hive. His big yields of honey every year show that the hive enables him to get there every time."

"Then I suppose you don't think much of the new-fangled Heddon hive."

"Well, no! You see, Doolittle don't say much about it."

"Well, Bro. V., do you practice artificial swarming?"

"No, sir. You don't catch me so far from nature's plan as that. Doolittle and I agree on swarming, exactly."

"I see you have Alley's Handy-book; how do you



succeed in raising queens according to his particular method?"

"Why, now, friend R., you make me tired. Just think of the fixin's and palaverings with shaving combs, hot beeswax, matches, and tin feeders! Why, Doolittle's natural plan just fits into my hat, and we get there with big queens and tons of honey every time."

"Do you raise comb or extracted honey?"

"I raise gilt-edged comb honey. I don't expect to equal Doolittle just yet, but I mean to get there."

Finding I could not get Bro. V.'s mind from the great bee-man, we talked crops and farming generally, but Doolittle's name would get mixed in with corn, potatoes, and the care of stock.

At the table, when he passed the articles to me I expected him to say, "Will you take some more Doolittle?" like the girl passing potatoes to a man with an enormous nose. The nose fully absorbed her mind, and, said she, "Sir, will you have some more nose?"

Dreams troubled the Rambler again, and it seemed as though we were all following Doolittle; and in this direction I am free to confess are often found the steps of the

RAMBLER.

#### THAT RACE BETWEEN BEES AND PIGEONS.

##### THE MATTER EXPLAINED.

**M**R. EDITOR:—On page 935, for 1888, you copy an item from the *Bee-Keepers' Record* about a flying-match between pigeons and bees. You reserve prudently your opinion on the story, for want of facts. I am able to give you information. The German *Bienenzeitung* first reported the match, whence it has been translated in so bungling a manner that it became indeed a very ridiculous yarn. A correct translation will change it into a serious and interesting experiment. It reads as follows:

From Hamm it is reported that one Mr. Ch. R., a fancier of carrier-pigeons, and a bee-keeper, proposed the following match: The distance was to be not quite one hour (about  $2\frac{1}{2}$  miles), namely, from Rhynern to Hamm. The day selected was fine, when bees would come home sooner than carrier-pigeons. The bet was taken . . . and bravely won by the bee-man. Twelve carrier-pigeons and twelve bees, sprinkled with flour, 4 of which were drones, were taken to Rhynern, and there simultaneously set free. One white drone arrived 4 seconds in advance of the first pigeon. The second pigeon arrived simultaneously with the other three drones, and together with the rest of the pigeons arrived also the workers. The bee-keeper had won the match."

You will, by comparing the above with the rendering in the *Record*, easily understand that the translation has been made by a man equally igno-

rant of the German language and of apiculture (which he confounded with agriculture). He omitted to say that the bees were sprinkled with flour, because he did not know what every bee-keeper knows, that it was essential, as otherwise the bees could not be identified. Not quite one hour is about  $2\frac{1}{2}$  miles (English), not 5 miles. The German term *langten an*, which means *arrived*, is, by the ignorant fellow, translated "preceded by a length." Any schoolboy would not have made such nonsense. The fact that pigeons are beaten by bees is not new.

Sigel, Ill., Feb. 15, 1889.

DR. WM. LEERS.

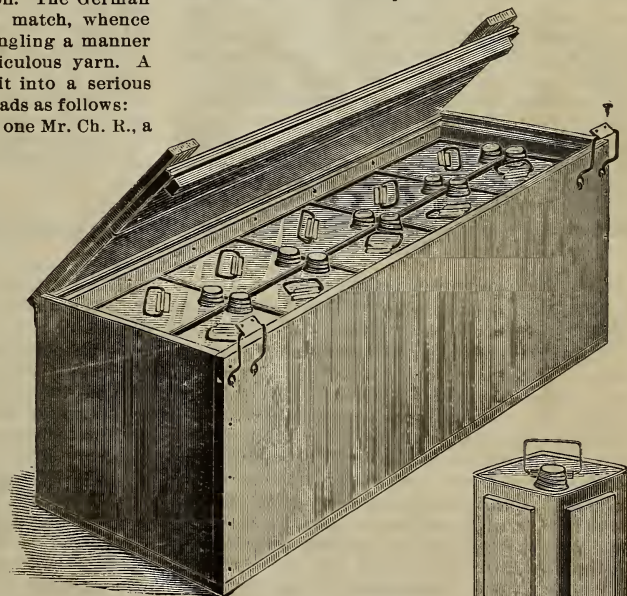
#### SOMETHING NEW FOR HONEY AND MAPLE SYRUP.

RECENT IMPROVEMENTS IN THE WAY OF CANS FOR MAPLE-SYRUP MAKERS AND SHIPPERS.

**M**OST maple-sugar makers have experienced the awkwardness of trying to box up the ordinary round cans, whenever they are so lucky as to have an order for syrup from a *distance*. Well, this season, for the first time, we have got a gallon can that fits into an ordinary square box as nicely as a duck's foot fits in the mud. If you don't believe it, look at the "pieter."

Now, if you should be so lucky as to have an order for ten or a dozen cans, you can just set them all in one box made purposely for shipping syrup, as in cut below.

Of course, all I have said in regard to the adaptability of these cans for maple syrup will apply with equal force to putting up and shipping honey. In fact, we keep them in stock all the year round.



A BOX HOLDING TEN ONE-GALLON CANS FOR MAPLE SYRUP OR HONEY.

Price of the one-gallon cans, not boxed, \$12.00 per 100; same boxed, 10 in a box, \$14.00 per 100; single box of 10 cans, \$1.60. Single can, without any boxing, 15 cts.

## BEE-FOOD IN WINTER.

THE BEST OF THEORIES MUST VAMOOSE BEFORE  
CONTRA FACTS.

**W**HEN I answered Question 97, in GLEANINGS, I did so from my experience in bee culture for the past twenty years. I, also, have some theories and a slight knowledge of chemistry as connected with apiculture; but the latter are not great enough to cause me to rely upon them when my practice with large apiaries teaches me differently; but it happens that my theories regarding transpiration, ventilation, and the component parts of winter food, precisely agree with my experience, nearly all of which ground you have been over in your experience, as indicated in your foot-notes to Bro. Corneil's article on page 172. I love theory; still I am aware that there is both true and false theory. I strongly incline toward those minds which take to theorizing, and who study and love science; and I value Mr. Corneil's scientific articles, but I know positively that, in the depths of his research, his lantern has gone out, and he thinks he feels something that doesn't exist. I know that bees can and *do* and *did* continue to digest syrup without the least particle of pollen in the hive. Practically I know nothing of the component parts of sugar, only so far as I believe the statements of chemists, and especially of our friend Professor Cook. I believe that I never said that my bees starved on sugar syrup. I said that they froze to death during the longest and severest cold spell I ever witnessed. Bees kept upon natural stores did the same; but I did bring through 73 colonies upon sugar syrup, and in perfect condition. There were very few dead bees, and not the least sign of the old malady we have called bee-diarrhea or bee-dysentery, so that, when they had their first flight on the 17th of April, warm and pleasant, and the outside bees were gathering pollen, not a bee of the 73 colonies voided any thing, not even water. Their bodies were just as slim as when placed in winter quarters. I call that perfect wintering, as they were confined in the cellar 151 days with absolutely no food in the hive except strictly pure granulated-sugar syrup acidized with tartaric acid. I honor Mr. Corneil for his careful research, but I know that he will be compelled to search again.

## DOVETAILED HIVES.

When I see something in GLEANINGS relative to mechanical construction of hives I am at once interested; for, more than all other branches of apiculture, have I made this a study, and with it have I experimented. While William Stolley, of Grand Island, Neb., was my foreman I devised this same honey-board with the full bee-space on either side, and he assisted me in making it; or perhaps I am mistaken, and it was W. H. Shirley, of Mill Grove, Allegan County, Mich., who helped me make some of them at our mill, one or two samples of which still hang in my shop. The brood-frames to use in that case were to come flush with the top of the hive, of course, the bee-space being in the honey-board. It has never gone into general use with us, and I think it never would, even were we to continue using the old Langstroth hive and suspended frame. Now, the dovetailing arrangement, you may well imagine, was talked over much by us, believing as we did that it would be the best way with which to make our shallow cases, which with the

new hive you know I use in the brood-chambers the same as in the surplus cases, and we came near getting machinery to make them in that way, but did not do so. I believe it is a move in the right direction; and with your shop-room, power, fine machinery, and large trade, I believe it is practical and best to adopt dovetailing for hives, supers, etc.

No, I do not favor discarding the bee-space at the top of the L. hive, nor do I believe the section-holders illustrated on page 189 will come into general use. I will not occupy your valuable space at present by telling why; but you make one of my points when you say that honey is cheap, and we must have simple and cheap implements. Where no separators are to be used, I believe nothing is better than my old-style case, but I would advise making it with dovetailed corners, and grooves in the sides for divisions. Certainly you are privileged to not only use but manufacture for sale my break-joint and bee-space honey-board, when used either with or without queen-excluding metal, or, for that matter, any of the parts connected with my modification of the Langstroth hive; and, more than that, I wish to thank you for your manly method of giving credit to whom you believe it belongs. Of course, you have not forgotten how almost alone I pleaded for the honey-board; but a writer in the *Canadian Honey-Producer* seems to have forgotten that almost alone I also pleaded for the tiering-up system long before he ever uttered a word about it, as the records show, and no doubt before he had any conception of its usefulness. It is tedious, to say the least, to plead for certain manufactures and systems of manipulations for years, opposed and almost alone, and, after succeeding in popularizing it, to have some one come up, like a Jack out of a box, and lay claim to the results of your labors; but we must learn to bear and forbear.

Dowagiac, Mich., Mar. 5, 1889. JAMES HEDDON.

You will see, by referring to department of "Recent Developments," elsewhere, that we have decided to put the bee-space *above* the frames instead of below, and, of course, use a one-bee-space honey-board.

## ANOTHER HEXAGONAL APIARY.

SESPE APIARY, FILLMORE, CAL.

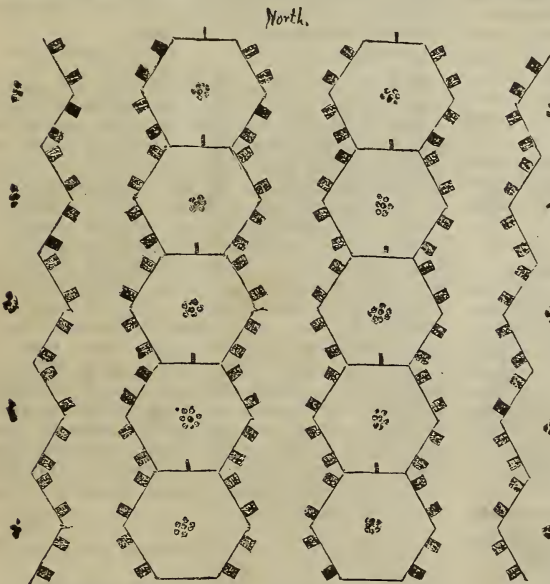
**I**DID not think to tell you about my hexagonal apiary when you were here, so I send you a plan of it now. The little round spots are stones about as large as a man's head, 8 in a pile. They answer a double purpose. They are put on the hives in the winter to keep the covers from blowing off, and when a hive has a virgin queen one of them is put near the entrance to mark the hive until she is laying. The hives all face those stone piles, and the honey-carts are run up through the other hexagons between the backs of the hives. Those other marks between the stones are nucleus hives. The advantages of this arrangement of the hives are, that the bees do not work to the out ends of the rows, and become weak in the center as they do when the rows are straight, and queens are seldom lost on their wedding-trip. The only disadvantage I know of is the difficulty in getting the honey-cart to stand close and at right angles to the inner hives when taking out honey. The land slopes south to the honey-house; hives face east and west,



and brood is always placed near the south side of hives in the spring. J. F. MCINTYRE.

Fillmore, Cal., Jan. 21, 1889.

Friend M., we are very greatly obliged to you. I was very much interested, in fact, in your hexagonal apiary; but those great mountains before and behind your pretty little ranch kept me staring so much of the time with open mouth that I am afraid I did not look at the apiary as much as I might have done otherwise. Perhaps not all the readers may be as fortunate as you are in having access to stones of any particular size you may happen to need. I want to explain to the friends, that right in front of his house a big block of granite about the size of a meeting-house stands as tranquilly and unconcerned as if it had a perfect right there; but friend M. told me,



PLAN OF SESPE APIARY, BELONGING TO J. F. MCINTYRE, FILLMORE, CAL.

when I looked at it in a questioning way, that it came down the canyon one night in a flood, and stopped right there. In my innocence I spoke about following the path up to the summit of a mountain right across the stream, while waiting for the buggy. They said I would not have time, and asked me if I noticed some animals away up on the summit of the mountain. I told him I saw some little black pigs, for that was what he meant; but after I looked carefully, the little black pigs seemed to have horns on their heads. When told they were cows, the mountain seemed to spring up a quarter of a mile all at once, and I concluded I would not go up where those little cows were, especially as we hadn't more than an hour to spare.

Do you want to know something more about the apiary? Well, Sespe Apiary, as they call it, is one of the prettiest I ever saw. The honey-house is at the foot of the incline, just below the bee-hives, so that a

cartload of honey goes down through those open lanes without much labor. Between the honey-house and the road is a great iron tank. These iron tanks are to be seen near every honey-house in California. An iron pipe runs from the extractor into the tank; then a gate at the bottom of the tank lets the honey into the square cans, standing on a platform just right to load into a wagon. There is no need of building any roof over the tank, for it never rains in California during the honey-flow. You will find a photograph of some of the mountains back of Sespe Apiary, in our A B C book. Right back of the apiary, on the western slope, is an irrigating canal that pleased me greatly. It is a sort of wooden flume; and the sight of the pure babbling brook that glides down over the sandy and gravelly bottom, as if it

were in a big hurry to get somewhere, was to me a fascination. These streams of water mean business — market-gardening, fruit-raising, etc. The picture of R. Wilkin's apiary, in the A B C book, does not begin to do justice to the spot. The trees seen scattered about are orange and fig trees, and the oranges and figs are good too.

Do you want to know what our young friend McIntyre is doing with R. Wilkin's apiary? Why, he married friend Wilkin's youngest daughter—that is how it comes about. Oh, yes! I want to tell you one thing more about young McIntyre: He is a young Canadian, like "our John;" and I tell you, friends, when you find better boys to work than these young "Canucks" you will have to fly around lively. When friend Wilkin was putting up his shipload of honey to take to Europe there was a great demand for tinner, to solder up cans. The best tinner in San Buenaventura succeeded in soldering only about 1100 cans a day; but friend McIntyre, after a couple of weeks' practice, solder-

ed up 1400.

This is the same apiary that E. Gallup had charge of some years ago. Friend G. is now located in Santa Ana, near Los Angeles, but he was not keeping bees when I called upon him.

#### DO LIZARDS EAT BEES?

PROF. COOK TELLS US SOMETHING ABOUT THE LIZARD FAMILY IN GENERAL.

**M**R. J. M. WOODHOUSE, Durango, Dubuque Co., Iowa, writes: "There is a small quadruped, about six inches long, with striped body and blue tail. It lurks about my hives, burrowing last summer under an empty hive in the bee-yard. What is it? Does it eat bees or honey, and is it poisonous?"

This is doubtless *Scincus fuscatus*, Holbr.—the blue-tailed striped lizard. This lizard is about eight inches long when full grown. Its head is bluish black, with six light-yellow lines, and its

body the same color, with five straw-colored lines. The tail is deep blue. The throat and abdomen are white. It belongs to the "skink" family of lizards.

Lizards—from their quick lively movements often called swifts—do live on insects. I have never known or heard of their eating bees; but the toads do, and why may not the lizards as well, as they too are insectivorous? I do not think, however, that they will do any very considerable harm. None of the lizards are in the least poisonous, or harmful to handle. Even the horned toads of Colorado, Kansas, and Texas—these are also lizards and not toads at all—which, from their horns, or spines, look quite formidable, are quite safe to handle.

Very likely the lizard may visit the cellar. They have been found in cellars often.

Mr. Woodhouse also asks if there is any positive evidence that bees mean to kill a queen when they ball her. I think there is the best of evidence. I have seen several queens balled, and soon afterward found them dead in front of the hive. That the bees sometimes relent, and do not execute their intentions, is equally obvious, for I have known more than one case where a balled queen left alone was permitted to escape, and did excellent work as the mother of the hive for months afterward. I think the bees intend execution when they surround a queen. Why they change their minds in some cases, I can not say.

Agricultural College, Mich.

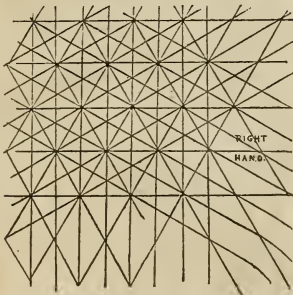
A. J. COOK.

I saw a great many beautiful lizards in California. They would glide along the rocks on which we were sitting, and peek at us curiously out of the cracks and crevices. I think it quite likely they might learn to eat bees to some extent.—In regard to bees killing a queen when they ball her, the most of us have had ample proof, by sad experience, that they do usually kill them unless driven away by smoke, or made to let them alone by recaging or something of the sort.

### SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

#### SETTING OUT TREES; HOW TO DO IT BY MEANS OF HEXAGONS.

ON page 980 of GLEANINGS, Dec. 15, you ask if any of your readers can tell you how the orange groves are planted so as to line at so many different angles. Yes, I think I can. The properties of the hexagon will explain it. You go to the honey-bee again for wisdom. Take a



FITZGERALD'S METHOD OF MARKING THE SITE OF TREES.

hexagonal piece of card and lay it on a piece of card-board, at the upper left-hand corner, to correspond with the dots of pencil. Move it to the right one-half of its diameter, and mark its angles and center. Keep on at this across the card, then place the hexagon just below the first diagrams made, and go across the same way. Continue this process *ad libitum*; then you can draw lines to represent the rows, as I have done, showing six angles at which they will row, or "line."

More trees can be set at a given distance apart on the same land, this way than in any other I know of. I have been in the fruit-business quite extensively, and have given the subject much thought. The properties of the hexagon are very useful in the solution of problems in geometry and trigonometry, as no doubt Ernest can testify. If any one gives a plan that is ahead of this, let us have it in GLEANINGS. I hope you will keep on traveling, and writing notes. I think your Notes and "Our Homes" the most valuable part of the book.

Brookston, Tex.

J. G. FITZGERALD.

We are all very well aware that the figure you give is the way trees should be set; but I can imagine that the greater part of us will have great difficulty in setting them as accurately as you have drawn your lines. Perhaps by the aid of the appliances given in our former numbers we may be able to do it. The orange-groves—in fact, orchards of almost all kinds in California—are set out in just this way. Each tree is the center of six other trees, all at equal distances from it and from each other. Some may say that it is too much fuss and bother; but, my friends, it pays to spend some time in fuss and bother when you realize that an orchard may stand not only during *your* life, but for the benefit of your children also. In cultivating, our California friends just pull their harrows through between the trees, in three different directions; and after they get done, the ground looked "handsome," I tell you.

#### THE IGNOTUM TOMATO. REPORT FROM PROF. BAILEY.

At least two or three thousand of our readers will be interested in the following, which we take from the *American Garden* of March 1:

This variety has been mentioned of late in several journals, and it therefore seems proper to say something concerning its origin and merits. During three years the Michigan Agricultural College has undertaken extensive tests with tomatoes, and for two years all varieties that could be secured from all sources were grown. In the spring of 1887 a complete set of German varieties was obtained from Robert Neumann, of Erfurt. Among them was the Eiformige Dauer. This proved to be a small and angular variety of no promise; but one plant bore fruits of remarkable beauty, solidity, size, and uniformity. Among about 170 sorts shown that year at the State fair at Jackson this tomato stood up far the best of any. I supposed this plant to be an accidental mixture in the seed of Eiformige Dauer; but being unable to determine it I called it Ignotum, or "unknown." In the spring of 1888 a few seeds were sent to several friends for testing, and some 500 plants were set in our own garden. Everywhere the variety appears to have exceeded expectations. I left the Michigan College in August, and therefore did not see the full fruitage of the plants; but my former foreman, Charles S. Crandall, a thoroughly competent observer, informs me that it maintained its excellence, but that a few plants reverted to the Eiformige Dauer, a fact which indicates that the Ignotum is a sport



from that variety, instead of having been a simple admixture in the seeds. Others, including E. S. Goff, at the New York Experiment Station, had similar results. It is to be hoped, therefore, that seedsmen will not be tempted to secure the variety until two or three years further selection give it a thoroughly stable character.

My successor, Professor Taft, makes the following observation concerning my last plantation of Ignatum: "From our own experience, and the reports of others who have tried it, I am inclined to think that it deserves a front rank among the tomatoes. With us, as compared with the Mikado, it is larger, smoother, more solid, less subject to rot, more productive, and is more desirable, both as an early and as a late variety. We had several hundred plants growing on a dry sandy knoll; and although it was a dry year with us, the plants gave a very heavy crop, and continued ripening until the frost destroyed the plants about the first of October."

Mr. A. I. Root, to whom a few seeds were sent, makes the following statement in his GLEANINGS IN BEE CULTURE: "The first ripe tomatoes I picked in the open ground were from a dozen vines of the Ignatum. It is remarkably free from rot, ripens all over alike, and each vine bears a great quantity of tomatoes. I do not know that we have any tomato in any respect superior, except the Mikado, and the Mikado excels only in size. Perhaps this is owing, however, to the fact that our Mikados of the past season were all from the seed taken from a tomato that weighed a pound and a half. The result of this selection of the seed gave us extra large Mikados, but it did not mend the awkward shape of a great part of the tomatoes very much. To sum it all up, then, the Ignatum tomato, in my estimation, is ahead of any thing heretofore introduced."

Four tomatoes have given us great satisfaction in outdoor culture, in the order named: Ignatum, Puritan (from Rawson), Potato Leaf (from Livingston), and Mikado. Mikado is too irregular, and is not uniform in size; but its great size and productiveness are merits which can not be overlooked.

Ithaca, N. Y., Feb. 4.

L. H. BAILEY.

You will notice from the above, that Prof. Taft has found it even *larger* than the Mikado. Professor Taft says that the plants were on a dry sandy knoll. Now, friends, I am beginning to think that a dry sandy knoll, or a dry gravelly knoll, is a much better place for tomatoes than the ordinary rich grounds of our market gardens. Last season we planted the bulk of our tomatoes right over the best and richest ground; and while they made an enormous amount of foliage, the tomatoes were later, and the greater part of them did not get ripe at all. If you want fruit very early, put it on ground so poor that they will begin to produce fruit when less than a foot high. If our friends who have received seeds of the Ignatum will carefully save their seed from the best tomatoes, there will be a good demand for them another season; and it is altogether likely that no seedsmen will ever be able to sell a very few seeds at a big price, as has been done with many of our novelties when they first came out.

#### MORE ABOUT BUSH LIMA BEANS.

In response to our order mentioned in our last issue, Thorburn & Co. did send us a packet of lima beans; and 25 of Thorburn's Bush lima beans weigh as much as 75 of Peter Henderson's Bush lima beans; moreover, the 25 beans, when cooked, were a lima bean, and no mistake, and fully as rich and delicious as the King of the Garden lima. Thorburn said that their stock was so limited they could not furnish any except 25-cent packets. We find printed on the envelope the following:

#### KUMERLE'S DWARF LIMA BEANS.

A novelty of great merit. Originated at Newark, New Jersey. Grows two feet high, branching out in all directions; is very productive, and especially desirable in small gardens, as it does not require any poles. Plant in rows two feet apart and one foot in the rows; one plant only should be allowed to grow in a hill. Per packet of twenty-five seeds, 25 cents.

We have asked Thorburn how many packets he will let us have at 25 cents each. If anybody else on the face of the earth has any of these Kumerle's Dwarf lima beans, we should like to have them stand up and tell us what they know — how many they have, and what they will take for them. It might be worth while to pay a big price for what stock is to be had, even at one cent per bean; for whoever raises a crop of them next season will probably get a good profit on his investment.

#### QUESTION 110 RECONSIDERED.

SHALL WE SHIP OUR HONEY TO ONE COMMISSION HOUSE, OR DIVIDE IT UP AMONG SEVERAL?

THE COMMISSION MAN A BENEFIT TO THE PURSUIT.

I HAVE had no experience in marketing honey, as this season will be my first in bee culture; but as a gardener I have had twelve or thirteen years of experience. I consider the marketing of honey the same, with this difference: Honey is not a perishable article, and does not have to be sold in one day, or even two or three, as do small fruits and garden truck. I do not think, but know by experience, that taking goods to two or more commission merchants (according to the amount) is a benefit to the shipper, and I believe it the same with honey. Commission merchants have chosen this occupation to accumulate wealth and support, and it would be folly for them to cut down the prices as some of the respondents tried to argue. Honey is something which does not require immediate sale. The larger the price, the more percentage they receive. One point I wish to mention is, that nearly if not all commission merchants have more or less enemies. I know about thirty commission merchants in Buffalo, N. Y., and many more I am not acquainted with. I believe there is not one but that has some enemies, some more than others. If we consign to two or more we have that much benefit. And another great point I look at in the honey line as well as gardening is the amount; for instance, 1000 or 1500 lbs. of honey in one commission house. It would seem a large amount in the eyes of some, but divide it among three or more and it would not be noticed; the same with garden production. If three or four teams came into market with very large loads, the people would exclaim, "Oh my! the market will be away down to-day." Take the same amount in one-horse loads, and the tune will be changed to "A small market to-day. Prices will be way up." Many here have discovered that it is better to go to market with two one-horse loads rather than make a very large two-horse load. Therefore I believe honey should be distributed among the commission houses. As far as my experience goes, I find the commission merchants try to keep a uniform price as far as possible. If every shipper of honey would be careful and sort his honey into two, three, or even more grades, as the case may be, and if, too,



he would paste small labels on each package to indicate first, second, and third quality, etc., and then divide the whole lot of several grades among the commission merchants, he would avoid some of the evils of competition hinted at by some of the respondents to the Question-Box. If Jones or Smith stops at A's commission store, and inquires the price of honey, and then goes to B's shop, Jones or Smith will find the same quality, and then there will be no chance for Jones or Smith to go back to A's store and say they can obtain honey at B's shop at a less figure. The commission merchants are generally up in the morning, and wide awake; they know the quality of goods others are handling. So I think Mr. E. E. Hasty is correct in using for example, the proverb that says, "Don't put all your eggs in one basket." HORACE F. GRESSMAN.

Water Valley, N. Y., March 4, 1889.

I am exceedingly obliged to you for putting in a good word in favor of commission merchants. There has been altogether too much fault found through the bee-journals and agricultural papers with this class of neighbors of ours. They do have enemies, I know; and many times it is because they are so far away that the one who intrusts them with his produce can not well get acquainted with them as he does with near neighbors. I do not mean that there are not some bad men among them; but if you consult your nearest bank, I think they can tell you almost every time which ones are honest and trustworthy. Sending produce to somebody whom you do not know is like jumping in the dark. I do not quite like your idea of two one-horse loads in place of one two-horse load. The former would take an extra man, and I think your people had better be educated instead of being encouraged in such notions. I believe it is true, that commission men, at least the successful ones, are up in the morning, and wide awake; and if bee-men are not also, they don't deserve success.

#### SOMETHING ABOUT THE SIZE OF THE BROOD-CHAMBER.

C. J. H. GRAVENHORST'S VIEWS.

I NEVER am more delighted by reading the American bee-papers than at that moment when the author holds with me in an opinion got by carefully conducted experiments. I think there must be some truth in it, if two men, living in different parts of the globe, come to one and the same conclusion, and agree, therefore, with one another. At least I felt so by reading the excellent article in GLEANINGS, No. 1, 1889, by Mr. Doolittle, under the head, "Something about Bee-hives." He says: "By many carefully conducted experiments I found that queens, as a rule, would not occupy more than 800 square inches of comb with brood for any length of time." In order to insure success, and not to get any pollen in the sections, Doolittle allows 200 square inches of comb above the 800 the queen occupied, so that he has 1000 square inches of comb space, or about 1500 cubic inches, as the right size for the brood-chamber, regardless of what style of frame is used. "Of course," says Mr. Doolittle, "the frames one has in use will not always give just the number of square

inches inside of them which is required, but we can use the number which comes nearest to it." That is to say, it matters not whether we allow a few square inches of comb more or less than 1000 for the brood-chamber, but this number is sufficient, and more are not needed. Of course, Mr. Doolittle knows as well as I and many other experienced bee-keepers, that, as we have sometimes dwarfs and giants among men and animals, so we have also small and big colonies in our apiaries, according to the fertility of the queens, aside from other circumstances. Now, I think we are on the right way if we have regard to this, and construct the brood-chambers of our hives neither for dwarfs nor giants, but for standard colonies; that is to say, such colonies as are in the best working order.

As far as I know from what I have read in the American bee-papers, the climate and honey resources at the Home of the Honey-bees in Medina, Ohio, and at the home of Mr. Doolittle, are similar if not equal, as in most sections of Germany, so that our standard colonies need only a brood-chamber of 1000 square inches to remain in full working order. May be that the standard working condition of colonies is not the same in all countries, according to the climate and the honey resources, and that in some sections it may be better to construct the brood-chamber much larger than 1000 square inches of comb space; but that must not lead us the wrong way in our own country.

By using 1000 square inches of comb, Doolittle has in the brood-chamber 50,000 cells for brood-rearing, if one square inch on each side of the comb has 25 cells. I have in the brood-chambers of my hives 51,000 cells in 9 frames. Now, let us see if 50,000 cells are enough for brood-rearing in order to have a good colony in full strength. No one has made more carefully conducted experiments to find out the number of bees in a swarm than the Baron von Berlepsch, so far as I know. He tells us in his book that a strong swarm of bees in a well-conducted apiary contains 20,000 to 22,000 workers. Such a swarm, he says, is in the best working order, if it is doubled so that it has 40,000 to 44,000 bees. If every bee lives six weeks at the time of their utmost working, then the bees will be doubled within six weeks. In order to breed 44,000 bees there must be 44,000 cells, besides the cells for honey-storing. If the queen is very prolific, and deposits only 2200 eggs daily, there would be, within 20 days, 44,000 eggs in the combs; there are in six weeks, more than 88,000 eggs. The hive would be double filled, even if all swarm bees had lived only six weeks. In order to have a colony of 40,000 or 44,000 bees in full strength it is only necessary that the queen deposit 1100 eggs daily during 40 or 44 days. Therefore 1000 square inches of worker comb is sufficient for the brood-chamber, where the climate and honey resources are similar, as at the home of Mr. Doolittle or in Germany. C. J. H. GRAVENHORST.

Wilsnack, Germany.

It rejoices our hearts to get a word now and then from good friends like yourself, away off across the water; and we feel proud to have you indorse friend Doolittle. If your conclusions are correct, bee-keepers should not spend too much time in hunting up better locations. They should bear in mind that success is not achieved in Medina, in Borodino, nor even away over in Germany, without hard, earnest work.



## CHILDREN OF THE KING.

SOMETHING ABOUT BEES AND OTHER THINGS,  
FROM SINGAPORE.

**B**ROTHER ROOT:—I have just been reading GLEANINGS; and when I got over to what you had written on Isaiah 55:9 I felt like the man at a family reunion, who met for the first time a distant relative whom he had never seen. As he extended his hand and looked him in the eye he said, "I have never seen you, but I should know you were a Smith, even if I should meet you in London. Here's my hand; we're of one blood." So I was sensible of a thrill of friendly feeling as I read how the hard places in our Father's word used to trouble you, and how our elder Brother made them plain to you in answer to earnest, honest prayer; and I said, "This is one of the family, and I can see the family likeness. So, here's my hand; and though I never saw you, and probably never shall, I want to send you a word of encouragement, and ask you to pray for the Master's work in this distant heathen city.

If you haven't looked to see whose name is attached to this letter by this time, then I miss my guess; but if you haven't, you must begin to ask, "Who is the fellow, and why does he not let us know who he is?" Well, I am a missionary from Ohio, and GLEANINGS is sent to me by friend Dr. A. B. Mason. He knows me and Mrs. M. and both our families; but suffice it to say to GLEANINGS, I am a Buckeye, at work for my King, like a bee for its queen, among the Chinese and Malays of the islands of Singapore.

I have often read your plain, simple expositions or explanations of texts, and have been helped and encouraged; not only by that, but also by the Scriptural way in which you seem to combine business and religion. Let your light shine; you probably could not glorify God more or half so much in any other sphere.

I was a year in Burma, but I have never seen a hive of bees in either that land or this, but heard that some were known of by some one else, and I am inclined to think it a matter of doubt whether any one has an apiary in this part of the world. But there are bees, for a month or two ago I saw a large swarm settle on a big teak-wood tree near our mission house. The Chinese schoolboys (boarders) tried to knock some of the comb down, which they said the bees would make very quickly, but they concluded to let them alone, and the bees went away after a few weeks, I think.

We have perpetual summer here, as we are less than a hundred miles from the equator. But we are so exposed to the sea-breezes that it seldom is over 90° or less than 70°. Foliage is superabundant, but flowers not numerous, yet I have no doubt honey is found to some extent. This I know, we have here some of the finest fruits that grow in the whole world—chiefly sub-acid or sweet—and there is no season, no month, even, when we can not get fruit of some kind in the fruit market or stalls. Oranges, pine-apples, and bananas, abound almost the whole year round. There is now growing, in our compound, cocoanuts, pine-apples, pomellos, nutmegs, cocoa, mangostines, jack-fruit, rambutans, and durians. The four last are peculiar to this region. The last is called by some writer the "emperor of sub-acids."

It is hard to get acquainted with, but a fast friend.

This, like the jack-fruit, smells from afar. It required a year and numerous attempts to kindle a fondness for either of them, but I am strongly attached to them now.

I left New York in Nov., 1886, and landed in Bombay, India, Jan., 1887. I had a good look at the great city of India, and crossed over the continent to Madras, on the eastern coast. Jan. 28 I plucked the choicest tea-roses from the abounding bushes in the station yard, at the top of the western Ghauts.

I am teaching by day in the Anglo-Chinese school (we have a large school of 250 day pupils, and a dozen boarders), and we hold regular gospel meetings among the artillerymen in Fort Canning, and another among the poor Eurasians in a narrow street called Saliga Road.

Last week several from both these quarters identified themselves with the church of Christ. Our boarders (Chinese boys) are most of them from wealthy Chinese homes. They eat at the same table, and of the same food, that the principal and teachers do. We carefully train them in books, and at the same time teach them about God's word and its contents. Nothing so interests them as Bible stories. The older ones understand the gospel message, pray, and some have said in actions and words, "I want to be a Christian." I saw one of our brightest, most promising boys on his knees before going to sleep, praying to the God of the Bible. We find great joy in doing such work for our Master.

But how often and how keenly do we feel our incompetence alone to undertake the great task of bringing these boys and these people to a knowledge of Jesus Christ as the every-day Savior of men from sin as well as wrath!

Pray for me and the other missionaries, that God may use us in accomplishing the great work, sure to be accomplished in time, of making the kingdoms of this world the kingdoms of God and of his Christ.

R. W. MUNSON.

Singapore, Malaysia, Asia, on Straits of Malacca, Dec. 7, 1888.

Here is my hand, dear brother, with thanks for your exceedingly kind words, especially as I had felt that that chapter of mine was one of my poorest—at least I didn't succeed in telling it so as to give one an idea of the actual experience I passed through in finding great truths where in the first place I had seen only great stumbling-blocks. I wish to emphasize one thought of yours in regard to getting accustomed to new products of the soil. In California the people were, almost without exception, exceedingly fond of pickled olives—that is, with the exception of the "tender feet" as they call them, meaning the new comers. They all assured me that everybody who tasted olives, for the first time, declared they were any thing but pleasant; and while the rest devoured them greedily I was shut out. But I kept tasting them, however, and now I not only find them delicious but nourishing; and if one who goes into a new country gives way to his likes and "dislikes, especially prejudice, he will lose a great fund of enjoyment afforded by getting acquainted with such of God's gifts as we have not been accustomed to.—It stirs my heart to hear you speak of the Chinese boys,

and I think yet of that class I had in charge for a brief half-hour in San Buenaventura. I know I am not mistaken when I say that these boys were well started on the up-grade from earth to heaven. With encouragement and looking-after, I am as sure of the outcome as I should be of a crop of corn with plenty of rain and sunshine, and all that can be asked for in the way of soil and fertilizers. May God bless and strengthen you. Such letters as yours will encourage me to make a more hopeful and brighter and better journal than I could otherwise.

#### HOW TO GET BEES OUT OF CRATES OF HONEY-BOXES, ETC.

ALSO A SUGGESTION IN REGARD TO KEEPING THE MOTH-WORM FROM EMPTY COMBS.

**M**Y bees do not seem to like those queen-excluding honey-boards (?). I hived three swarms in a hive with one in, before I could get one to stay, and then only a half-stayed. I let them alone, thinking they had no queen, and would soon die; but when I looked at them a week later they were carrying in pollen. The whole lower part of the hive was filled with empty combs; on top of them I placed the queen-excluder, then another Simplicity body half filled with new white drone comb; on this a crate with partly filled sections from last year. When I went to prepare them for winter I found the crate empty—the top Simplicity body half filled with what looked like nice white honey—and bees—the lower body containing neither bees nor honey. I thought I could not bother to keep them over winter, but would take the white honey from them and let the bees go out at the screen-door along with the other bees. So I had them carried in with the rest, and set on the floor among them. Next day I looked to see if any of the crates were empty of bees, so that they might be carried upstairs, and I found that *all* the crates and hive-bodies were entirely empty—not a bee in them, and not many bees were clustered on the screen, as there used to be on such occasions, with the exception of that hive-body that had that white-looking honey in. I lifted up the frames and found that, after about three inches of drone comb filled with honey, there was worker comb with a few cells of unhatched brood. All the bees in those twenty or more different boxes had gone in where there was a queen. Now, will bees do this every time? If they will, here is a very easy way to get bees out of sections: Just bring a nucleus with a queen, and put it among the crates, and let all the bees go to her. Perhaps some one has told this before. I do not remember seeing it, and it is *perfectly new* to me.

I had the men carry that hive back to its old stand, and fixed it up for winter, like the rest. Last spring, when I found that so many of my bees had died, I knew that I ought to take care of those combs in some way. But I was too sick and weak, and I made up my mind that the moths would have to eat them. Every week I thought I would get Irving to help me smoke them, or get the beeswax out, or something; but there never was an hour when I could have him, nor a day when I could do it alone. This went on till three weeks before swarming time. Then I went one day to look at them, expecting to be made sick with the sight of

so many worms; but (would anybody believe it?) not a worm was to be seen. I could scarcely believe my eyes. The combs were molded somewhat where the dead bees still clung to them, but there were no moth webs and no worms. I began taking out the combs, and in every hive I found a colony of little black ants. They were mostly in the outside combs which contained some drone combs, and the cells were full of white ant-eggs—or larvæ—Prof. Cook will please tell me which. I took the empty combs then and placed them over colonies, instead of cooking them up, as I expected to do. Now, then, did those ants keep out the moth? or is all nature going to be kind to me after this, and let my things alone? MAHALA B. CHADDOCK.

Vermont, Ill., Feb. 14, 1889.

My friend, your invention is not new. The matter has been several times noticed, and I believe, also, several times mentioned in our journals, that, where a queen is by accident or otherwise carried into the honey-house, all the bees from a great stack of sections will find the queen and cluster around her, and sometimes you can make not only a nucleus but a nice little swarm of bees, and such a swarm will work as well as a natural one. Ants or spiders, if allowed access to empty combs, will keep out the moth-worm. Whether they appropriate the larvæ for food, or whether the moth is afraid of them, we are not able to say.

#### CAPTAIN HETHERINGTON.

The Largest Bee-Keeper in the World.

BY HIS FRIEND P. H. ELWOOD.

**T**HE subject of this sketch would have gained distinction in any occupation, for nature has endowed him with indomitable will power, coupled with organizing and executive abilities such as would quickly have placed him at the head in any large undertaking. His power of comprehending the whole is no less remarkable than his ability to grasp, at the same time, the minute details of an extensive business.

John Edwin Hetherington was born January 7, 1840, at Cherry Valley, N. Y., where he still resides. He comes of a good ancestry, his father being an educated English gentleman, his mother a member of the old Judd family, of Connecticut. The father dying when the youngest of the three brothers was less than a year old, master John less than three years, the entire care and training of the children fell upon the mother; and the highest tribute we



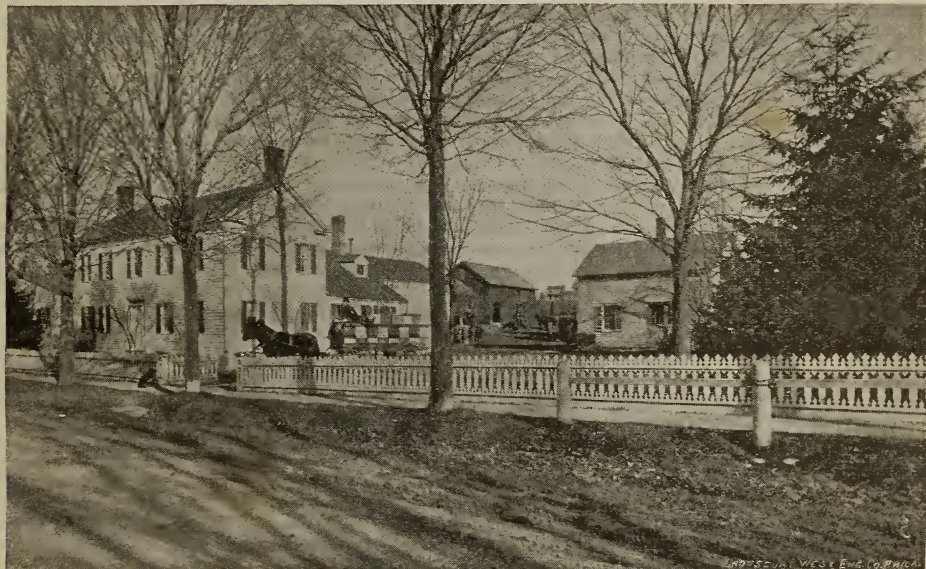
CAPTAIN HETHERINGTON'S FIRST LOAD OF BEES.



can pay her is to point to the characters developed in her sons. Although all three were in the military service during the late war, they came out as they went in, with spotless reputations, and abstainers from the use of tobacco and strong drink.

The captain bought his first swarm of bees when twelve years old, with money earned for that purpose. The thorough-going business methods of the mature bee-keeper were foreshadowed in the care taken in bringing home his first colony. The old family horse is put before the large spring wagon, and is driven by a member of the family. For the additional comfort and security of the swarm, the hive is suspended in a sheet, the ends of which are tied over a springing pole, while the ends of the pole rest on the shoulders of the two older brothers, who are seated on boards across the wagon-box, facing each other. This extra care seemed necessary for the swarm that was destined to contribute so much toward bringing apiculture from the dark-

he discovered that, while warmer for awhile, this double wall did not allow the sun to drive out the moisture, and the hive soon became damp, and consequently cold. He made six hundred of these, and I think they are as perfect mechanically as hives can be made. Not finding the double wall satisfactory he next put his bees into straw hives, a part of which were adapted to the Quinby size of the Langstroth frame. This was about the time of the commencement of the civil war. These box straw hives were excellent for winter and spring, and well suited to the requirements of the bees at other times. They were not of the usual straw-hive shape, but had flat tops, and were well adapted to boxing. They cost nearly two dollars apiece, and at one time he had about 1400 of them. With the immovable-comb straw hive he adopted a system of artificial swarming that was so successful that he often had not a single natural swarm from an entire apiary. Previous to this he had in use swarm-



CAPT. HETHERINGTON'S HOME, WITH LAST LOAD OF 32 COLONIES IN THE BACKGROUND.

ness of superstition into the full light of modern science. In contrast to this first load we present a picture of the last load of bees, driven by James, the eldest brother. On the one side is seen the captain's residence, while upon the other side is a honey house and shop, with the barn in the rear. At the back of the well-kept lawn are two observatory hives, not shown in the engraving. We endeavored to get in a view of the bee-yard, but it was not possible, for at this time of the year it is several acres in extent.

The boy bee-keeper had good success, and within five years he had marketed honey by the ton, and had secured an average of nearly sixty pounds of honey in glass boxes from his entire apiary. He was a close observer, and quick to adopt improvements. Before he had been in the business half a dozen years he had perfected a double-walled hive with chamber of confined air between, and had applied for a patent on the same. On thorough trial

catchers for issuing swarms. These were placed before the old colonies, and held the clustered swarms until the apiarist could get around to hive them. It would be an item of interest in apicultural history to have some of these early hives and appliances illustrated. After a trial of the movable frame, the captain found that he could not do without it; but in his trial he made the important discovery that the straw hives with the Langstroth frames did not winter nearly as well as did the others whose combs were built against the sides of the hive, leaving no spaces at the end of the combs. He therefore adopted the newly invented Quinby hive, with closed-end frames. After an experience of years with open and closed end frames he decidedly prefers the latter. No new invention enters the apicultural world but that the captain notices it; and, if valuable, he adopts it. The honey-extractor was his as soon as it crossed the ocean, and he has used it ever since, believing it to be one of the



greatest inventions and one of the most useful articles in the apiary. He believes in producing both comb and extracted honey, in quantities and styles to suit the market. He experimented with comb foundation four or five years after the date of Wagner's patent, obtaining his samples from a Mr. Steel, of New Jersey. The invention came from Germany, as perhaps did also the samples. It was only a midrib, without any attempt at cell-walls, and was a failure, but lacked only the Yankee ingenuity to finish it by giving it side walls, and thus make it a success. The captain has very hopefully followed up this invention from its beginning. He was quite enthusiastic at the time, of receiving the first handsome samples from the Weiss machine; but, alas! he did not then know that it was made of paraffine, nor did he at first observe that the cells were intermediate in size between worker and drone. The queen was slow to use this size of cell except when the sheet was convex, or stretched so that the cells were enlarged, when she very freely deposited drone eggs in them, or where the sheet was concave, so that the cells were diminished in size when workers were reared. Noticing this fact he saw the necessity of making and keeping the cells of the proper size. To prevent sagging he tried cloth, paper, and wood centers, all of which were objectionable. Finally in 1876 he incorporated wires into the wax sheet, and met with complete success. Several years before this, Mr. Quinby and himself had made complete comb of thin tin coated with wax. This was tested in midwinter, the captain bringing bees into a warm room for the purpose; and although the cell bottoms were flat, it was freely occupied with brood and honey. In the manufacture of comb foundation, it was observed that impressing the rhomboidal bases upon the wax sheet would lay bare the wire unless a wasteful quantity of wax was used. To avoid this he left the cell bottom flat, thus also economizing in wax and simplifying its manufacture. Previous to his invention of flat-bottomed foundation he had persistently refused to use natural-base foundation in his honey-boxes, he being unable to make or buy any but that would leave an objectionable fishbone in the honey, and he did not propose to sell to others what he would not use on his own table, or what would injure the high reputation his honey had gained. With flat-bottomed foundation, twelve feet and upward to the pound, he now produces comb honey that, on the average, has a more delicate center than that built wholly by the bees. Last year Mr. Cowan, president of the British Bee-Keepers' Association, looked in vain for foundation or fishbone in Capt. Hetherington's honey. Next day, however, he visited a second-class bee-keeper and found the objectionable hard center in his honey, although he had used no thicker natural-bottom foundation than 10½ feet to the pound. The captain says this foundation is usually worked over, and its base changed; and I have observed that the wax then appears to lose some of its solidity, and becomes more like comb. Certain it is, this foundation makes more tender comb honey than any other we have been able to obtain. Capt. H.'s patent legally covers all kinds of wire supports for foundation, including wired frames, and he should be recognized by the bee-keeping fraternity as the inventor of wire supports for comb foundation. This should be most cheerfully given him, as he has so generously permitted all who wished to do so, to use wired frames.

He receives a royalty upon wired foundation from its manufacturers, the Messrs J. Van Deusen & Sons, of Sprout Brook, N. Y. The importance of this invention is becoming more apparent as time passes, and it must soon take rank as one of the greatest inventions of modern apiculture.

Starkville, N. Y.

P. H. ELWOOD.

*To be continued.*

## UNFINISHED SECTIONS.

DECIDEDLY IN FAVOR OF THEM.

**FRIEND ROOT:**—Noticing your request in regard to unfinished sections, p. 92, I will give you my experiments and conclusions in regard to the matter. At the close of the season of 1887 I had about 500 unfinished sections on hand. The combs were nicely drawn out, and the sections white and clean. I placed them in crates, *without scraping off the propolis*. I piled the crates up as compactly as possible, and covered them so as to exclude all dust. They wintered in good shape—in fact, they looked as well when I put them on the hives the next spring as they did when taken off in the fall. Thus I was led to believe that they would look as well when completed as those built from new foundation in new sections. Now for the facts: On part of the hives I placed these sections, and on colonies of equal strength I placed crates of new sections. The season opened badly, and the bees were in no hurry to go upstairs. They showed a decided preference to staying in the brood-nest; but those colonies that were supplied with unfinished sections commenced work above first. The sections—that is, the wood—looked rather bad, but the capping was as white as the others. In our market such honey sells as well as any.

The colonies having new sections were about a week behind in starting and capping. There was one exception. One colony completed new sections before the rest had capped honey in the crates. They also cast the first swarm of the season. *They are also the worst robbers I ever saw.* They did not need feeding in the spring, because they fed themselves at the expense of their neighbors. So full of mischief have they been, that we call them the "den of thieves."

From the light of what experience I have had, I believe that it pays to keep unfinished sections. I place one or two in every crate of new sections as a decoy, and am fully convinced that it pays. I shall experiment on the same line next summer, because this season honey came in slowly up to buckwheat bloom, and that may have had something to do with the result.

Hereafter I shall cut my foundation for sections 3¼ in. square, as by doing so I get combs built clear out to the wood. I use the 4¼ by 4¼ section.

I did not scrape off the propolis in the fall, as I thought that I could keep them cleaner by handling them as little as possible. You may place me on record as being of the opinion that a colony will complete a crate of unfinished sections sooner than a crate of new sections, even if the latter has a decoy section.

## THE WORLD TYPE-WRITER.

I do not wish to close without saying a word in favor of the World type-writer. I am well pleased with mine. After two weeks of practice I can write faster with it than I can with a pen. The



other evening I wrote off a song containing 300 words, in ten minutes, making only five mistakes.

WILLIAM E. GOULD.

Fremont, Mich., Feb. 9, 1889.

It does not seem to me that you hit the point exactly until you come to the concluding part of your last sentence. The question is, "Will bees store more honey in a whole crate of partly finished sections than they will in a crate of new sections filled with foundation with, say, *three or four* partly finished ones in the middle as decoy sections?" We should like to have more facts from actual experience in regard to this latter point.

### HOW MUCH IS CONSUMED IN WINTER?

IS IT FAIR TO ESTIMATE FROM OCT. 1 TO MAY 15?

**FRIEND ROOT:**—In your comments on page 61 to the answers to Question 102, you ask whether your explanation of the widely different reports is not a good one. I don't think you have touched the real root of the matter at all, so please let me give my idea.

The time specified, from October to May, includes time that can not be properly charged to wintering, but includes much time when bees can fly freely, when more or less honey is gathered, and when large amounts of brood are raised. In my answer I estimated the amount of honey in the hive Oct. 1st, less the amount on May 1st, without making any account whatever of the amount gathered and consumed during the time. The amount of honey gathered in the spring before May 1st varies very widely in different localities and in different seasons in the same locality. In Northern Iowa I have known over 40 lbs. per colony, over and above what ever might have been gathered, to be consumed between the dates mentioned; and I remember one season at least where there was fully as much if not more honey in the hives on May 1st than there was Oct. 1st previous. It can easily be seen how impossible it is to get accurate reports to cover so long a time. Again, it is very evident that several of those who answered this question did not do so with reference to the full time covered by the question; in fact, Prof. Cook and Dr. Miller name other dates.

On page 41 friend Doolittle speaks of the climatic changes going on in his section of country on account of the destruction of forest-trees. In the far western prairie States the opposite change is taking place, as more artificial groves are being raised than natural ones are being destroyed. And right here let me repeat what I have already written, that it is useless to expect success in outdoor wintering in the far North, unless the hives are well protected from direct winter winds. A thick grove, not simply a hedge of evergreens or other brushy trees, is best; but I have known success obtained by the use of high tight board inclosures.

Havana, Cuba, Feb. 2, 1889. O. O. POPPLETON.

Friend P., your points are well taken. We have been accustomed to say May 1, because we can not say that our bees are safely wintered until about that date. I do not believe that anybody has overdone the matter of providing windbreaks, very much.

### NOTES ON MARCH GLEANINGS.

AND NOW PROF. COOK TAKES FRIEND CORNEIL TO TASK A LITTLE—SEE PAGE 172.

**EDITOR GLEANINGS:**—I read March GLEANINGS, as I do every number, with much interest. You are to be praised and congratulated for giving us such a rich meal each fortnight.

Mr. Corneil's article, like all of his writings, shows honest, painstaking, conscientious work. His authorities and quotations are excellent and correct, but his conclusions may not be warranted. True, we must have the three kinds of food, and that at frequent intervals. Neither one nor two of the three kinds, carbo-hydrates (starch and sugars), fats, and albuminoids will answer. All *must* be present. But, can we reason that bees must have the same, and at as frequent intervals? Nay, verily, I think not. I have known the Texas horned lizard—usually called horned toad—to live for months with no food. Such reasoning as Mr. Corneil adopts above would pronounce this absurd and impossible. A bear will live in winter, and breathe very little, almost none at all, yet the circulation continues. Our hearts would not propel such blood at all. They are not made that way; but the bear's is and does. Now, it is my opinion that bees may pass the winter with no air other than may pass through the hive, and that they may also do well with no nitrogenous food except that which is already in the blood. The bear passes the winter with only the fat of its own body to keep the vital engine at work. May not bees, then, live on pure carbo-hydrates during their winter quiet? I believe so, and, as I said in a recent article sent to GLEANINGS, I shall soon know.

As to air, I kept a colony sealed in ice, at the opening of the hive, one whole winter. It was covered with snow, and wintered exceptionally well. The ice was still intact in spring, when I dug out the hive. Now, there can be no mistake about this. I have tried to repeat the experiment, but without success. It needs a nice adjustment of conditions which I have failed to arrange. Let me say that I froze up the entrance after a very severe winter had commenced. Those bees secured all their air through the hive—doubt it who may.

Sorry, friend Root, that you say science and art are at variance. I say, *never*. In our haste to generalize we assert what is not science. Thus pseudo-science and art, or practice, differ. The chemist said there are no nutritive elements in the silage not in the dried food. That was true. Had he said the dry food is as easy to digest and assimilate as the silage, he would have stated, not a scientific fact, but an untruth, and the cow would have shamed him. We ought all to be careful in our generalizations and statements. Even then the best will make some mistakes.

I like Rambler's bee-dress very much, and Ernest's new Dovetailed hive. How can the board cover be made so it will not twist or warp?

Agricultural College, Mich.

A. J. COOK.

And now, friend Cook, are you not a little mistaken? As soon as I read the sentence, "Sorry, friend Root, that you say science and art are at variance," I carefully scanned my remarks to see where I have even intimated that science and art might be at variance, but I do not find it. All I do find is

this: "If practice and theory should give different results, I would stick to practice." What I meant by it was, that I should at once conclude that science (?) was making a mistake. I know that all of us are often too hasty in drawing conclusions, but I believe that I entirely agree with all you have said in the above.

We are glad you like the Dovetailed hive. As to the cover of the Dovetailed hive, it can not warp, because the ends are driven into longitudinal grooves of the end cleats, which for additional security are nailed. That there may be a twist or wind to such a cover is possible but usually not probable, we think. It should, of course, be kept painted. This cover is similar to the one used by Mr. Heddon, Dr. Miller, and other extensive bee-keepers. If we are correct these gentlemen like them better than any other kind.

#### KEEPING DIFFERENT KINDS OF HONEY SEPARATE

When Extracting at the Close of the Honey-Flow.

DADANT & SON GIVE US SOME IMPORTANT FACTS IN THE MATTER.

**FRIEND ROOT:**—On page 126 you ask us our experience concerning harvesting the different grades of honey separately. We wish to say, that we have never tried to leave the entire honey crop on the hives from May till October, but that we do harvest each crop separately. We will ask you to quote from page 436 of the Revised Langstroth: "Some apiarists extract the honey as fast as it is harvested by the bees, and afterward ripen it artificially by exposing it to heat in open vessels. We do not like this method, and prefer to extract the whole crop at once. It is much more economical, for, with our system, one skilled man attends to as many as five or six apiaries during the honey crop, and extracts at leisure afterward, with almost any kind of cheap help. Since honey has now to compete in price with the cheapest of sweets, the question of economical production is not to be disregarded." Now turn to page 444 of the same book. "In localities where there are two distinct honey-crops, each crop should be harvested separately. Thus we always extract the June crop in July, and the fall crop in September." We will add that we never have any mixture, except that of clover with basswood (the basswood crop being of no account here), or the mixture of different fall flowers that bloom at the same time. We will say, also, that we find differences at the same date, in the honey of apiaries four or five miles apart, owing to the greater abundance of one certain kind of blossom in each apiary. Thus we have different grades of honey at one time; and the honey of one barrel can not be taken as a specimen of the honey of another barrel harvested at the same date in a different apiary. The date of granulation also differs, probably owing to the greater or lesser density of the honey. We are not the only ones who have noted this, for Mr. J. M. Hambaugh, of Spring, Ill., has had a similar experience in different apiaries which he conducts according to our methods. CHAS. DADANT & SON.

Hamilton, Hancock Co., Ill.

#### AMERICAN AND SWISS FEEDERS.

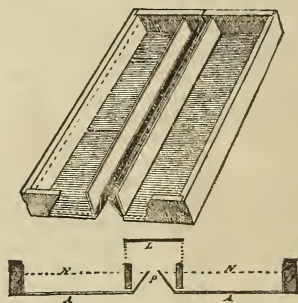
THE MILLER-WARNER FEEDER NOT NEW.

**T**HE following article we copy from the November number, page 215, of the *Revue Internationale d'Apiculture* (French). The translation, by W. P. Root, is as follows:

Similar needs arising in different countries gives birth to the same ideas and inventions, without the inventors having necessarily copied from each other. Such is frequently the case in apiculture, the best instance of which we can cite being the movable-frame hive which Langstroth invented in America, while, but a short time after, Berlepsch, in Europe, transformed the single-barred hives of Dzierzon and of his predecessors, completing the framing of the combs by suspending them, as in the Langstroth model.\* The same matter comes up to-day in regard to utensils of far less importance.

After describing and illustrating the Miller-Warner feeder, already given in our columns, the editor, Mr. Bertrand, says:

Now, several years ago there was used in Switzerland a large feeder, invented and manufactured by P. von Siebenthal, in Aigle. It is constructed on the same principle as the American feeder, and does not differ materially. The two troughs are of sheet iron, varnished, and surrounded with wood on three exterior sides. The fourth side is slanting instead of being made vertical, that the bees may have access to the liquid. To prevent them from getting drowned in the troughs, a permanent vertical partition separates the slanting wall, or side, from the trough proper. A space two millimeters ( $\frac{1}{16}$  of an inch) high runs between the partition and the bottom of the trough, giving a free passage to the liquid. A sheet of glass, movable, and resting on the two partitions, closes the space between the two platforms above, and retains the heat. See Figs. as below.



A, A, troughs. L, sheet of glass. P, passage for the bees. N, level of the liquid.

The troughs are independent of each other, and can be used separately, and they do not permit of the bees going out, if their dimensions are adapted to the inside of the hive. The sheet of glass being placed on, the cloth covering and cushion are put back. The troughs adapted to the Dadant hives

\* Sixty years previously, Francis Huber had conceived the idea of making frames movable by adjusting them to his observatory hives; and Quinby, in the later years of his life, went back to the invention of Huber when he made his hive with fixed frames.









have an interior dimension of about 51 centimeters (20 inches) long and  $6\frac{1}{4}$  inches broad. By giving 6 centimeters (2½ inches) in height to the framework, we obtain about  $1\frac{3}{4}$  inches of height which can be utilized for holding liquid. That done, by the opening of the interior wall about 4 liters (a little over a gallon) per trough, or 8 liters per hive, may be put in, and a good quantity will be taken by the bees in a single night.

### FOOT-POWER VS. HAND-MACHINES FOR PUTTING FOUNDATION IN SECTIONS.

C. C. MILLER IN FAVOR OF THE CLARK.

ON page 68, Jan. 15, is "A Correction" which I think needs a correction. The last sentence reads, "With regard to the relative merit of the Parker and the foot-power machines, our experience says that the latter work more rapidly and easily, but the Parker does rather *better* work; that is, the foundation is made to hang straighter after it leaves the machine." If, in place of "foot-power," you had said "Gray," I should make no objection; but as "foot-power" includes the Clark, your statement does not agree with my experience. Having had a large experience with both the Parker and the Clark, I feel pretty competent to compare them. It takes so much strength to use the Parker, that my assistant could use it only a short time without stopping. Perhaps, while I am at it, I may as well compare the three, premising that I have very little acquaintance practically with the Gray. Although the Gray may not make quite so good work as the Parker, the labor is lighter, and the Clark takes the least labor of the three; and besides that, it makes *better* work than either of the others. When using the Parker I was troubled by foundation occasionally dropping out of the sections—remember, I use full-sized starters—but it is a very rare thing to have foundation drop out after being fastened with the Clark, although such sections have been trotted back and forth to out-apiaries till a good many have traveled 20 miles.

Friend Root says, that, with the Parker, "the foundation is made to hang straighter after it leaves the machine." I suppose that is true of the Parker as compared with the Gray. The Clark excels the Parker in this respect, in my experience. Indeed, for my use I think the Clark excels in *every* respect. Probably for friend Root the Gray is better, because he uses shallow starters, and has his sections tumbled promiscuously into a basket. I should not want full starters subjected to such treatment. Immediately on leaving the machine I want my sections set upright, either in a super, or preferably in a pile ready for suppling.

I suspect that some who have tried these machines will wonder at my strong preference for the Clark; but if they use the Clark *right* they will cease to wonder. The Gray and Parker both depend upon pressure with a sliding motion, to fasten. With the Clark there is to be *no sliding whatever*. All that is needed is a quick swing of the feet, making the presser sink the foundation into the wood, and then the feet come back with a rebound, the whole performance requiring very little strength. I think it would be well if friend Root would change the instructions in his price

list; for if I had to use the Clark as there instructed I would then probably choose between the Gray and Parker.

It remains to be said, that the chief trouble I have had in using the Clark has been in using too much strength, and pressing the foundation so hard as to cut it entirely off, or so nearly off that it was held by a very slight hold. Possibly I ought to say, that, rather than too much strength, the trouble was in having the foundation too warm and soft.

### FAILURE OF WHITE CLOVER.

After the severe drouth of 1887, which appeared to kill out a good share of the white clover, root and branch, I watched with intense interest to see what it would do in 1888. As the first green leaves showed, there seemed promise of a fair crop; and when the blossoms opened there was, without exception, the heaviest bloom I ever remember to have seen. The disastrous season of 1887 had so diminished my numbers that I did not average more than 35 to each apiary, and, with such an apparent harvest, and the ground so lightly stocked, I confidently counted on a big yield per colony. The average per colony, spring count, was not quite 12 lbs. I have some doubts whether any great portion of that 12 lbs. was from white clover. I know that a good part of it was not, and I think scarcely any of the stores for winter were from that source. Is it to be, that white clover, like buckwheat and some other things, will have its seasons of failure to yield nectar? or is there any truth in the theory of some, that white clover yields no nectar the first year it blooms after coming from the seed? Although this may be true, it does not seem probable that a whole season's glooming will take place, and no nectar in the flowers. Or is the failure due to electrical conditions, which is equivalent to saying that we common bee-keepers can't tell any thing about it?

Marengo, Ill.

C. C. MILLER.

What we said on page 68 had more direct reference to the Gray machine than to the Clark. When we used to use the Clark we fastened foundation by using pressure and the rubbing motion; but had we used pressure alone, no doubt we should have had better success. We are very glad to get the testimony you give; and, in accordance with your suggestion, we have changed the directions in our price list so as to conform to your method of fastening foundation.

### PAINTED VS. UNPAINTED HIVES.

FRIEND DOOLITTLE GIVES US SOME VALUABLE  
FACTS IN REGARD TO THE MATTER.

AS the season of the year for painting hives is drawing near with us here at the North, and has probably already come to our brethren of the South, I thought a few words on the desirability of our doing so might not be amiss at this time. It will, I think, be admitted by all, that hives look better and will last longer, if painted, than if left unpainted; but I mistrust that \$15.00 a year will sustain more hives if spent for lumber alone than if spent for paint and lumber; yet when we take the looks into consideration, probably there is little difference in favor of either, providing that the bees would do as well in one as

in the other. In this respect, I consider the unpainted hive much better suited to the wants of the bees, and contend that bees will not do nearly as well in painted hives as they will in an unpainted one. Wherein is an unpainted hive better than a painted one? Principally in this, that, if properly covered, it will keep the bees dryer at all seasons of the year, and, owing to this dryness, they are consequently much warmer. As unpainted wood is porous, the moisture evaporates through all parts of the hive, keeping the bees warm, dry, and quiet, thus avoiding an undue consumption of honey, as well as bee-diarrhea. Several years ago I had a number of box hives, some of which were painted, while others were not. I set them out of the cellar about the first of April, in as near an equal condition as could be. In the morning after every cold frosty night, there would be water running out of the entrance of those that were painted, and on tipping them up the combs were found to be quite wet near the outside of them, or next the walls of the hive, while those in unpainted hives were dry and nice, no water ever showing even at the entrance. Those in the unpainted hives increased in numbers faster, and swarmed from one to two weeks earlier, than did those in the painted hives.

"But," says one, "I use corncobs, cut straw, forest-leaves, and other absorbents in the top of the hive, to get the moisture out, by letting any excess that may arise pass through them and out at the top of the cover." This will help some as far as the moisture is concerned; but if not done on a scientific plan, it will let out much of the heat by such a direct-draft process, which should be retained in the hive. Even if done properly, I can not help thinking that hives will keep bees better if unpainted, because in this case the moisture passes out of the hive in all directions. Paint is useful only so far as looks and durability are concerned, and is positively injurious as retarding the evaporation of moisture. This is the result which I have arrived at, after years of experience and close observation with single-walled hives, and I believe the damage is greater by far than the cost of a new hive occasionally, where ordinary hives are used.

So far I wish it understood that I have been speaking only of such hives as we used a quarter of a century ago, and not of the chaff hives of the present day. With the advent of the chaff hives came a new era in bee-keeping, and the case with these is entirely different, along this line of painting, than with the single-walled hive. With the chaff hive the moisture is driven through the first wall, which is always of unpainted lumber, just the same as it would be in case of an unpainted single-walled hive, after which it lodges in the chaff or other packing, from which it passes out slowly through any crack or crevice which may exist in the outer shell, and more largely about the joint in the top of the cover and between the cover and the hive. I use a cap or hood six inches deep, on all of my chaff hives, while directly over the bees is a sawdust cushion, which is only four inches thick. This cushion extends out over the chaff packing only an inch or so on all sides, or only sufficient to make sure that all the upward ventilation that can possibly exist must pass through this cushion, and also so as to make sure that no bees can get up into the cap. This leaves the larger share of the chaff walls uncovered except by the cap, so that whatever moisture escapes through the walls of the inner

hive into the chaff can at once pass up into the cap, and out through the cracks of the same, in all mild weather, which it also does to a certain extent on very cold days; yet in zero weather, where the same lasts for several days, I will find the inside of the cap all frosted over, which shows what an amount of moisture is continually passing from the bees. I think that, from this passing-off of the moisture as given above, comes the reason, largely, why bees winter so much better in chaff-packed hives, rather than that the extra protection has all to do with it, as some claim. Bees can endure any amount of cold which we ever experience in the U. S., provided they are kept dry; but dampness and wet they are not able to stand, where cold is added to it. From this comes the reason that bees winter tolerably well in a warm damp cellar, while with the same degree of dampness outdoors they generally perish; or if in such surroundings in any place where the mercury stays below the freezing-point for any length of time, as it necessarily must in our Northern clime. In this we get a little clew to add to the others, which, as a whole, causes our wintering troubles, for I believe these troubles do not rest on any one thing entirely. In accordance with my belief, as expressed in this article, I paint all of my double-walled or chaff hives, and leave all of the rest unpainted, considering that in doing so I am as near right as possible, taking all things into consideration. If any of the readers of GLEANINGS think that I am wrong, a trial of a few hives in each way will convince them which is right.

G. M. DOOLITTLE.

Borodino, N. Y., March 1, 1889.

I have for years, friend D., been pretty well satisfied that what you say is true. An old board with outsides somewhat decayed is warmer, and better for a bee-hive, than a sound board so thoroughly painted that it is as hard and cold, almost, as a marble slab. The old board partakes somewhat of the nature of the walls of the old straw hive. Since you mention it, I do remember of having seen water run out of well-painted hives, in the spring of the year, but I am pretty sure there would have been no such ice and condensation inside had the hive been unpainted, although I never thought of it until you suggested it. I am glad to know that your experience with chaff hives is, like my own. Now, somebody is continually improving our chaff hives by making an outside shell of wide boards instead of slats something after the fashion of a corn-crib, as we make them. And while we are discussing this matter I want to say that my opinion has been for some time that the inside of a chaff hive would be better if made of common plastering-lath than as it is now. The principal objection to it is, that it would be more work. Some friend has adopted the plan of making the boards of this inside shell of thin lumber, perforated with holes; and as this was discussed in the journals some years ago, I wish the friend who had the idea would tell us how it answers for a wintering hive. Of course, if we make the outside exposed to the weather, with narrow slats, we must have these slats beveled on their edges, so as to let the water run down the outside as much as possible, instead of going through and wetting the chaff.



## HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE TARANTULA; SOMETHING MORE CONCERNING ITS HABITS.

**A**LLOW me to correct your mistake in regard to tarantula nests. It is only a hole in the ground, without a cap, and the web very light. The nest you speak of is that of the trap-door spider, which is a much smaller spider, and without the hair. Tarantulas are both black and brown in color. The males have small bodies and very long legs; the females have longer bodies. I have captured a great many while in California, and killed and mounted some for sale, while working at my trade of taxidermist in Pasadena. To capture them, all that is necessary is plenty of water, a pair of large tweezers, and plenty of small pasteboard boxes; for if they are put together they will kill one another. I have frequently brought in 100 or more in half a day's hunt with a horse and buggy. When you find the location, a doily clay soil, you pour water in their holes and the spider comes up to see what is the matter. You then catch him with the long tweezers, and box him. I killed them with chloroform, and then prepared with arsenic. I mounted some 500 while in California last winter. I sent you a fine specimen, if you remember.

Williamson, N. Y., Feb., 1889. T. G. ASHMEAD.

Very likely you are right, friend A.; but the boy who brought me the nest, with its velvet lining and neat little trap-door, told me, if I remember correctly, that it was the nest of the tarantula.

STARTING BEES INTO THE SUPERS WITH SECTIONS OF HONEY; WILL ITALIANS FILL THE SUPERS AS READILY AS THE BLACKS?

In GLEANINGS of Feb. 1, page 91, I notice an experiment of Elias Cole, in regard to the best thing to get bees to work in the supers as soon as put on. Last season I put nothing in the sections but narrow starters, until about the 1st of August, and the bees seemed loth to work in them. One day in taking off honey I put one section full of honey in each row in the super, and the next morning the bees had nice combs built on each side of the honey, so I did that way until the close of the season; and the result was the same in every case. I think empty combs would have done as well, but I did not have them.

Is there any strain of Italian bees that will work in sections, equal to the blacks? From my experience, I say no.

243 BUSHELS OF JAPANESE BUCKWHEAT FROM 5 BUSHELS OF SEED.

From 5 bushels of Japanese buckwheat that my brother bought of you last summer he had 243 bushels. It was sown on sod land at that.

C. B. JACKSON.

Eau Claire, Wis., Feb. 12, 1889.

Friend J., if you fixed a lot of hives with sections containing just starters, and none with unfinished combs for decoy, you certainly neglected to follow the instructions of the journals and the text-books. No wonder your bees didn't commence work. You probably lost a good many pounds of honey by the operation. I think the A B C book, as long ago as when it was first written,

recommended taking a few sections from a hive that had already commenced work; and as it is some bother to get the bees off. I advised taking the section, not only with the comb and honey, but bees too. With such a hint as that, almost any colony with sufficient strength will commence to work as you have described—that is, when the other colonies are working in sections.—I suppose it is true, that black bees, as a rule, go up into supers more readily than Italians. They also very often put all their honey in the sections, and then starve to death if the owner does not look after them, while the more prudent Italians would have a supply in the brood-nest before they commenced in the supers.—So your brother made a pretty good thing of the Japanese buckwheat, did he not, friend J.?

CHAFF PROTECTION FOR SURPLUS BOXES.

My principal honey harvest is from the heather, which comes in about the middle of August. From the variableness of our climate at that season of the year we have difficulty in keeping the bees in the super at night. I make an outer case, for wintering, about three inches all over larger than my hives (the Simplicity), and fill up with chaff. Now, would you advise this outer case to be kept on during our honey season? How would this compare with your chaff hive, mentioned in your A B C?

Now that you have done California, why not link your arm in that of Dr. C. C. Miller and come over and see your cousins "across the pond"? We have a cold climate in the north here, but you would find warm hearts before you. W. STOKES.

Carr Bridge, Scotland, Feb. 2, 1889.

Friend S., we certainly would advise you to keep the outer case on during the honey season. Most of our colonies are in chaff hives, and our experience has been most emphatically that chaff protection around the surplus boxes is certainly a good thing. According to our experience bees are more apt to build comb in chaff-protected supers than in those not so protected, and they are more inclined, also, to enter the boxes. The reluctance of bees to enter the surplus apartment might, we think, sometimes be overcome with chaff packing around the super. Thanks for the kind invitation.

BASSWOOD LUMBER; HOW TO GET IT CLEAR AND WHITE.

We have commenced making sections. We find considerable of our basswood is colored, and do not know how to account for it. The most of the stuff was cut this winter, and we know most of it was white and nice when sawed. We shall be glad to have any information you can give us.

Riverton, Va., Feb. 18, 1889.

J. SLACK.

Friend S., it takes years of experience, or, at least, it has taken us many years, to learn the knack of getting perfectly white basswood when dry. In the first place, the trees should be cut in cold weather, before the sap starts in the spring. The logs should be taken to the mill and sawed just as soon after cutting as possible; then the lumber must be sticked up right away, well spaced out, with good slant, well covered, in the open air. If these directions are strictly followed, you will have nice lumber, if you use nice timber to start with. It

takes four or five months for the timber to season properly. In fact, it had better not be used for almost a year after it is cut. We anticipate our needs a year ahead in getting basswood lumber, and have to keep a stock of from \$5000 to \$10,000 worth in our yard all the time.

#### FEEDING AT ENTRANCE DURING THE DAY.

Please tell me if it would do to place a feeder at the entrance of a hive through the day, and cover the feeder with a box, and have it so arranged that the bees can get to the feed, but not out of the box. My bees get wild when I feed them a little.

Muncie, Ind.

E. W. HITCHENS.

Friend H., you could feed bees in the manner you propose, but we would not advise it. Better put the feeder on top of the brood-frames. If there is not space under the cover, put on an extra super or brood-chamber. Feeding at the entrance during the day is dangerous business, especially for beginners. We sell an entrance feeder, to be used during the day, but after all we regard it safer to use an entrance feeder at night, or, better still, put it upon the brood-frames as stated. Bees are apt to rush out of the hive in excitement if fed during the day, when no natural stores are coming in.

#### A SHRUB WHICH BLOSSOMS WITH THE SNOW ON THE GROUND.

*Forsythia viridissima* is a hardy early-flowering shrub, introduced some years ago from Japan, where it is said to blossom on and under the snow. I have seen it flower more than once on top of snow one or two feet deep, in this country. It seems that, while the ground is covered with snow, the sun causes the buds to burst, partly by reflection I suppose. Some people call it golden-bell. The branches are thickly covered with yellow flowers, which it produces any way; and if it is no honey-plant, I should say the pollen would be very acceptable where enough of it could be planted for bees to gather it. The shrub is hardy, very attractive, and not very fastidious about soil or location, but blooms, often, when nothing else can be found, like the witch-hazel in the fall. Perhaps others will send in their experience.

Sandusky, O., Feb. 3, 1889.

F. J. M. OTTO.

Friend O., where can this plant be obtained? Is it found in the catalogues, or does it grow in the woods like witch-hazel? I do not suppose it would be worth very much to the bees, as it blossoms almost too early, but it might be interesting as a curiosity.

#### A SUGGESTION FOR THE CLARK SMOKER.

I have bored an inch hole opposite the large end of the cold-blast tube in the Clark smokers, and over that hole I fastened securely a 2-inch tin screw cap, of the flat variety (not the kind that have a convex base), so that we can more easily clean out the tubes that are sometimes so liable to choke up with soot. Please try this feature on an old smoker that needs cleaning. The spring need not interfere, as the center of the tin cap need not be exactly over the tube. It is true, there is a patent on the caps, but the caps do not know it or say so.

Terre Haute, Ind.

H.

When we had the old blast tube we had thought of putting on the feature you speak of; but since enlarging the tube, such a pro-

vision is not so necessary. It might prove a convenience, but the advantage we think would hardly warrant the expense.

#### AN EYE-WITNESS TO THE QUEEN'S SEPARATION FROM THE DRONE AFTER MATING.

On page 92, Mr. E. A. Pratt speaks of queens and drones mating. I was going out to my bees one day, when two bees came whirling down in front of me and fell on to a pumpkin leaf. It proved to be a queen and drone. The drone acted as if he had been stung by a worker. He held fast to the leaf with his feet, and the queen kept whirling over and over, about as a fly would if caught in a spider's web, until she freed herself, then she flew out of sight in an instant, and the drone remained where he was on the leaf, but showed life for only about three minutes.

S. R. FLETCHER.

Onawa City, Iowa, Feb. 19, 1889.

Very good, friend F. We now have the whole thing from beginning to end, and I think that others have in times past reported pretty nearly the same thing you witnessed, so that we are able in our text-books to describe the operation from beginning to end, providing it always happens after about the same fashion.

#### CHAPMAN HONEY-PLANT SEED—HOW TO GET IT OF THE GOVERNMENT.

As I see some complaint in GLEANINGS, on page 134, by A. L. Lane and you about the distribution of the Chapman honey-plant seed by the Department of Agriculture at Washington, I want to say that I too read the notice in GLEANINGS last spring, and I at once wrote to Hon. Norman J. Colman, Commissioner of Agriculture, at Washington, for some seed, and soon got a little package of the same. I sowed some, and almost every seed came up all right. Some plants had, by fall, leaves 28 inches long. I believe if Mr. Lane had applied to Hon. Norman J. Colman, Commissioner, for the seed, instead of to his Representative, he would have received some.

JACOB RUCH, JR.

Gruetli, Grundy Co., Tenn., Feb. 21, 1889.

#### DISTURBING BEES IN COOL WEATHER; CLOSING THE ENTRANCE.

Referring to Question 90, disturbing bees in cool weather, please insist that all of your A B C class, and others whom you can influence, do make it a point, when examining bees while weather is too cool for them to fly, to close the front entrance of the hive with a cloth or block before opening the hive, removing the cloth or block when the hive-cover is replaced. You may try the plan in your dwelling when the weather is just right. One door or window may be open to advantage; but open a door opposite the one already open, and you can feel the draft, if you do not see the point. I hoped to read of this feature long since; but no paper that I have seen advances the advantage of shutting off the draft.

H.

Terre Haute, Ind.

#### SALT AS A FERTILIZER.

Have any of the readers ever tried sowing salt on buckwheat ground? What was the result? I am contemplating sowing about 24 acres of Japanese buckwheat. I can get the salt for \$3.50 or \$4.00 per ton, and the ground is heavy loam. I have tried it on common wheat, and I think it makes it plumper and whiter.









All my bees are in splendid shape up to date. I have 10 in chaff hives on their summer stands, and 22 in the cellar under the house. They were put in Oct. 20, and are as nice as a new pin.

Jackson, Mich., Feb. 6, 1889.

W. D. SOPER.

I would by no means think of applying salt at the rate you speak of, unless I had first tested it on a small scale. Now, please bear in mind that you can not test salt, phosphate, bone-dust, guano, or any thing else, unless you put it in your field in strips, leaving a strip without the fertilizer alongside of one with it. If there is a decided improvement in the fertilized strips, clear through the whole length, it amounts to something. Then you are ready for the question, "Does it increase the yield enough to pay the cost?" I am sure there is a good deal of blundering in the dark in this matter of fertilizers.

DR. TINKER DISCUSSES MR. SHEPHERD'S ZINC; SEE PAGE 11, JAN. 1.

*Friend Root:*—Mr. Shepherd's zinc is new, so far as I know, but the perforations are the exact length and width of those I have in my zinc. His zinc has no advantages over the usual style of perforating, as you state in the foot-note. Mr. Shepherd is also mistaken in supposing that more openings can be made in a given piece of zinc by perforating his way. The strips of zinc I use in my wood-zinc honey-board are only  $\frac{1}{4}$  of an inch wide, and yet eight of these strips (the number used in a honey-board) have 352 perforations. Mr. Shepherd's zinc is one inch wide, and eight strips of the same length would have 372 perforations, or only 20 more than my honey-board now contains. But strips of my zinc one inch wide would have three rows of perforations, as you will see by the inclosed sample, which would make 528 perforations in the honey-boards, or 156 more than Mr. Shepherd's zinc would have in the same size of board.

Strips of zinc one inch wide, if used between wood slats spaced  $1\frac{1}{2}$  inches, as they should be, would not leave enough wood in the slats to properly support the zinc, as you well observe. The wood slats in my honey-board are a little over  $\frac{1}{2}$  of an inch wide by  $\frac{3}{8}$  thick; and used with strips of zinc  $\frac{1}{4}$  of an inch wide they make a strong honey-board; and if the zinc has two rows of perforations there will be all the perforations necessary for the largest colony.

I presume Mr. Shepherd's perforator is made of wood, carrying a punch and die, as it would cost about \$75.00 to make a good iron machine to go by a belt. The wood machine can be made to do very fair work at the start, but the dies are soon spoiled. Good perforated zinc is now so cheap that I can not think it would pay any one to make a wooden machine.

DR. G. L. TINKER.

New Philadelphia, O., March 2, 1889.

HOW TO KEEP HONEY FROM CANDYING; PERFORATED ZINC NOT A PREVENTIVE OF SWARMING.

Can you tell me of a method to prevent honey in the comb, and also extracted honey, from candy-ing? Can swarming be successfully prevented by placing perforated zinc before the entrance so as to keep the queen from flying?

S. HOWE.

Clarence, N. Y., Mar. 4, 1889.

Candyng can not be prevented entirely, but you can do a good deal toward it. See what is said in the A B C book, especially in

regard to extracted honey. If it is in the comb the temperature should not be allowed to go down to freezing. Swarming can not be prevented by the use of perforated zinc, although it may be thwarted for the time being. The zinc simply prevents the queen from going out with the swarm. The latter, in her absence, will usually return. But it is not advisable to let the bees make a second attempt. Trying again, and failing, they will be pretty apt to destroy the queen. The zinc is a convenience while you and the rest of the family are away.

BREAKING OF ONE-PIECE SECTIONS, AND HOW TO PREVENT WHEN THE TIMBER IS TOO DRY.

Last spring, after I had put on the first sections, I carried a crate containing about 350 to the attic, under a slate roof. Temperature was  $110^{\circ}$  to  $130^{\circ}$  during the clear days. When I came to use them, several weeks later, they were so dry I could not fold them without breaking. I carried them to the cellar for a day, when I could fold without a single break.

A NEW FORAGE PLANT.

The *Am. Agriculturist* for Feb. tells of a new forage plant called "serradella." Dr. A. W. Thornton, Washington Ter., speaks of it as being valuable for bee-pasturage. It is planted about corn-planting time, and blooms from July 1st to frost, so it can be cut twice. It is equal to timothy hay for feeding.

W. W. KULP.

Pottstown, Pa., Feb. 11, 1889.

Your ideas in regard to handling sections to make them fold up are good, friend K.

ITALIANS BEST, HYBRIDS INFERIOR, AND BLACKS POOR.

I have 50 strong colonies of bees—blacks, Italians, hybrids, and albinos. The Italians are the best honey-gatherers I ever saw. For Texas they are *the* bee. If honey is to be had, they will surely get it. My best Italian colony gave me about 90 pounds of comb honey. My best hybrid colony gave 50 pounds of comb honey; best black colony, 35 pounds of comb honey. All of them had the same showing. The flow from the horsemint lasted about 30 days, being the only good flow from that source since 1884.

Lexington, Tex., Feb. 12, 1889. W. S. DOUGLASS.

DECOY HIVES; BUILDING UP AN APIARY BY MEANS OF.

I have been reading your A B C, and I was attracted by your article on "Decoy Hives," under "Swarming." I am but a novice, and have had very little experience in bee culture, and am indebted to Mr. F. Danzenbaker and your A B C for what little I know. In 1886 I noticed about 100 bees flying about our barn in swarming season, and immediately put an old bee-hive there. Next day at ten o'clock there was a large colony; that afternoon there were a few more bees around the gable end of our house, and I put a hive there. Meanwhile I had put another hive in place of No. 1. (I will designate hives by numbers.) The next day I had a second swarm in No. 1 and one in No. 2. They had crossed the Delaware, which is two miles wide at this point, and had half a mile from our place to the river; and as it is a marsh for fully a mile to the first house on the New Jersey side, they must have flown at least  $3\frac{1}{2}$  miles. Subsequently I had two more swarms from across the river, and two more from this side, all outside of





rod and wild sunflowers. The honey is the nicest fall honey we ever produced. We sold 500 lbs. or more, cut right out of the brood-frames. The light honey brought  $12\frac{1}{2}$ —2000 lbs., \$250. The dark honey brought 10—3000 lbs., \$300. Six swarms of bees brought \$15.00. All sold within 12 miles of home. We did not have enough to supply the demand. We think we have reason to thank the Master—don't you?

E. R. A. BRAINARD.

Postville, Iowa, Jan. 21, 1889.

To be sure, friend B.; and it rejoices my soul to see so many of the readers of GLEANINGS indicate even in their reports that they recognize in their work the all-wise Ruler of the universe.

#### 1047½ GALLONS OF HONEY; THE LAST SEASON THE BEST FOR YEARS.

Last year was the best for honey we have had here in many years; 120 colonies made for me 1047½ gallons of honey; average per colony, 8½ gallons. Padgett, Ala., Feb. 9, 1889.

B. B. TONEY.

Well done again, friend Toney. This makes another tiptop report for 1888.

#### 11½ TONS OF HONEY LAST SEASON, AND 29 TONS FOR THE PAST THREE SEASONS.

My honey crop this season was 11½ tons, and for the past three seasons 29 tons. When you come to visit friend Freeborn next summer, just drive around this way, and I think we can show you a few "points" in our management worth seeing.

Mauston, Wis., Feb. 19, 1889.

FRANK MCNAY.

#### 3500 LBS. OF HONEY FROM 32 COLONIES THE FIRST YEAR.

Last year I bought 32 stands of bees at wheat harvest, and during the fall I harvested about 3500 lbs. of fine extracted honey, and increased to 51 by natural swarming. They are all in very fine shape.

JOSEPH TRINDLEY.

St. Peters, Mo., Feb. 20, 1889.

## REPORTS DISCOURAGING.

#### NOT ENCOURAGING FOR NEW SOUTH WALES.

**W**E are having a very bad season here this year. Last season I put an Italian swarm into a hive of comb foundation, Nov. 1, and on Dec. 8th I extracted 50 lbs. of honey from it, from white clover. This season, no signs of swarming yet. The Italians are the only ones getting honey. The blacks make scarcely enough to live on. When I say a bad season here, I mean in the "New England District of New South Wales."

JOHN S. RUTTER.

Armidale, Australia, Jan. 7, 1889.

#### NOT ENCOURAGING FOR AUSTRALIA.

We regret to say, that this season the bees have not done any thing worth speaking of, and our trade in supplies has been correspondingly small. Reports are, however, improving, and men have told us of "pure Italians" (?) being found "in the bush" as we call it—that is to say, building in trees, etc., wild. At any rate, swarming has commenced at last; and if we have a long summer we might make up for some of the trade which we might have done if the season had been more propitious.

Sydney, Jan. 21, 1889.

HEBBLEWHITE & CO.

## NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

#### TO TRANSFER IN WINTER.

**I**S it possible to transfer a colony of bees from an old-fashioned box hive to a hive with movable frames, in the winter? They have no honey in the old hive, and I wish to transfer them for feeding.

JOHN HOBBS.

Red Hook, N. Y., Feb. 6, 1889.

[Experts have done it frequently, but a beginner should not undertake it. The better way would be to pry off part of the top of the hive, and feed them as you would ordinarily a colony in a movable-frame hive. If they pull through all right, you can then transfer them during apple-bloom next spring.]

#### OAT HULLS INSTEAD OF CHAFF.

I am putting up a few chaff hives, but I have no chaff to fill them with, and I'd like to use them this summer. The question is, Would oat hulls do to fill them, instead of chaff? Don't you think that would be a good substitute?

J. L. EDWARDS.

Oxford, Ia., Feb. 7, 1889.

[Oat hulls might answer for a packing; but if you can possibly get chaff we would recommend you to use it instead. For further particulars, see A B C book on "Wintering," a prospectus of which we inclose you.]

#### HOW LONG FROM A START WILL IT TAKE FOR FOUL BROOD TO INFECT THE WHOLE HIVE?

How long would it take foul brood to get under such headway in a hive containing 12 Gallup frames that every comb should be affected more or less—say from  $\frac{1}{4}$  to  $\frac{3}{4}$  of all cells used in brood-rearing being affected?

D. W. C. MATTHEWS.

Ypsilanti, Mich., Feb. 7, 1889.

[After foul brood has made its appearance in a few cells in a hive, if neglected by the apiarist that long, it will take only about a week or ten days for it to affect every comb. In two weeks every cell of brood will be rotten.]

#### COFFEE-CANS FOR EXTRACTED HONEY.

Will large tin cans that roasted coffee comes in, holding 50 lbs. of coffee and 16 gallons of honey, be stout enough to ship honey in? Cans are boxed.

Madison, Ga., Feb. 12.

R. H. CAMPBELL.

[If the coffee-cans are securely soldered I should think they might answer; but as they are manufactured for shipping coffee and not for honey, which is so very much heavier, I think you had better test them carefully before risking very much honey in them.]

#### BEEES ALL "FROZE;" HOW TO START ANEW.

Can a person start up a swarm of bees by getting a queen and a pound of bees? Mine all froze. I should like to start again.

M. J. BOWLES.

Sexton, Ind., Feb. 4, 1889.

[With a pound of bees and a queen you can make a very nice start. Where one has lost all his bees, this is the best way to begin anew. It certainly is the cheapest.]

#### 40 BUSHELS OF JAPANESE BUCKWHEAT FROM 1 PECK OF SEED.

We have received GLEANINGS regularly, for which we thank you. We are well pleased with it. The peck of Japanese buckwheat I bought of you last year I sowed on  $\frac{1}{2}$  acre of ground. It yielded 40 bushels by measure.

J. N. BUZZA.

Kossuth, Pa., Feb. 18, 1889.

# 197 BUSHEL OF JAPANESE BUCKWHEAT FROM ONE POUND OF SEED, IN TWO SEASONS.

I was well pleased with the Japanese buckwheat I got from you. I got 1 lb. in 1887, and I raised three bushels. I sowed this, and got 197 bushels from four acres, and did not use any fertilizer or manure.

Vose, Pa., Feb. 25, 1889.

G. A. CONRAD.

# 2 BUSHEL OF JAPANESE BUCKWHEAT FROM 6 LBS. OF SEED.

I sowed 6 lbs. of Japanese buckwheat last spring, and harvested  $5\frac{1}{2}$  bushels, and that on thin land without manure. I think it is the best buckwheat in the world.

T. R. CANADY.

Roark, Mo., Jan. 23, 1889.

# THAT CALIFORNIA TRIP.

I have been much interested in the report of your trip. I was over much of the same route the year before. I am now moving out there. If you did not visit Pomona, you missed one of the nicest places in Southern California. The author of "Blessed Bees" lives at Pomona.

Green, N. Y., Jan. 17, 1889.

L. E. ST. JOHN.

# PREVENTING INCREASE; A QUESTION.

How would the following method of preventing increase succeed? Follow Dr. Miller's plan of giving plenty of room in the sections; hive all prime swarms that come out, and prevent after-swarms by some well-known method; the following season, unite down to the original number at the beginning of the honey-flow, using the empty hives and combs to repeat the operation?

A. C. BUGBEE.

Lochiel, Ind.

[Your idea of uniting in the spring, so as to have your colonies all exceedingly strong just before the honey harvest opens, is one that has been considerably discussed, and some very successful honey-producers tried the method years ago.]

# FRAMES PARALLEL OR AT RIGHT ANGLES TO THE ENTRANCE; WHICH?

Will bees do better to enter at the side or ends of frames in a house-apiary? I think I prefer to have entrance at sides of frames, but am not certain that it will do so well.

R. E. MASON.

Westminster, S. C., Feb. 19, 1889.

[Friend M., we do not think it is very material whether the frames are parallel with the entrance, or at right angles with it. We rather prefer the latter arrangement. Theoretically, the bees can better ventilate their hives during summer; but practically, there does not seem to be very much difference. Numerous tests have been made both ways, and there was no appreciable difference in the result, either in the amount of honey secured or in its proper evaporation.]

# TWO OR THREE THICKNESSES OF PAPER INSTEAD OF CHAFF.

I come to GLEANINGS for advice. Another bee-keeper and myself conceived the idea that we would make several hives with double walls with two or three thicknesses of paper between, believing that paper is a non-conductor of heat or cold. Now, I want to know what would be the difference between them and chaff hives.

WM. BARCLAY.

Harmony, Ind.

[It is claimed by some, that two or three thicknesses of paper around the brood-nest, in between the outer shell, is equal to 3 or 4 inches of chaff—among them Francis Danzenbaker, of Claymont, New Castle Co., Del. As for ourselves, we can hardly see how the paper can be equal to chaff. It may be as warm, but it will not absorb moisture as well. G. M. Doolittle's article in the present number tells pretty nearly why chaff will be better than paper.]

# OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 112.—a. *What is the largest number of L. brood-frames you allow a colony at any time?* b. *If you vary the number, say when you allow the most. Say whether you mean for comb or extracted.*

Nine or ten frames of the large Quinby size, both for comb or extracted.

DADANT & SON.

a. Eight is the largest number. b. I never vary the number, either for comb or extracted honey.

GEO. GRIMM.

Eight. This is my number in brood-chamber. For extracting I add a second story, making sixteen frames.

A. J. COOK.

Working for extracted honey, a. 24, three stories high, eight frames each, in the height of honey-gathering, with extra strong colonies; ordinarily 16.

R. WILKIN.

For comb honey, 8; but I winter outdoors on two sets of 8 frames, one set above the other, and the upper set full of honey; for extracted honey, three tiers high, 8 frames in a tier, 24 frames in all.

E. FRANCE.

I allow 19—10 in brood-chamber and 9 above—for extracted honey. For comb honey, 8 frames below is generally preferred. The surplus should not be added before the bees begin to gather in the spring.

P. L. VIALLO.

a. 27 is the largest number I ever used at one time. b. I allow the most when the most are needed; for extracted honey I furnish the colony with all the combs or foundation they need, and tier up, using no honey-board.

DR. A. B. MASON.

a. Eight for box honey. b. In the early spring, especially if the colony is weak, I contract to five or six frames, and expand the brood-chamber as the season advances; but I do not contract during the honey-flow, to force bees into the boxes.

MRS. L. HARRISON.

We use a frame  $10\frac{1}{2} \times 16$  inside. Before putting on boxes we usually build them up to seven frames. When we had black bees we built up to eight. We usually reduce the number by one not long after putting on boxes. I would at least double the number for extracting.

P. H. ELWOOD.

a. Ten. But that's a very rare thing—seldom more than eight. b. Just before the harvest when the queen occupies the most room. This for comb honey. It is quite possible, however, that, all things considered, it is best to have the same number all the year round.

C. C. MILLER.

I have used as many as 48 in the best part of the season, when extracting. When boxing I would use 8, and the same for wintering. During the period when I am handling and preparing for the yield of either extracted or box honey, I use a number in proportion to the strength of the colony.

L. C. ROOT.

If I used the L. frame I would never allow a colony over seven when working for comb honey, and would use but five for a new swarm, up to the time of fall honey; then I would give them the seven.



For extracted honey I would allow ten L. frames all the while, unless the colony were very weak in the spring, and give room enough above to keep them from swarming.

G. M. DOOLITTLE.

a. I frequently allow the equivalent of 25 L. frames at a time. b. I vary the number of combs according to the strength of the colony, but the same number of bees in a colony will occupy and use more combs during the honey-flow than at other times. This applies to extracted honey.

O. O. POPPLETON.

Seven is my usual number, with eight or ten as an occasional variation or experiment. I do not vary the number after sections are put on. When I winter on four frames, as I often do, I simply add one or two at a time, in the spring, until they have seven. For extracting I would put ten below and eight or nine above.

E. E. HASTY.

I do not use the L. frame, so I do not know whether this question was intended for me or not. My frames are nearly the same in capacity as the L. frame. I use eight brood-frames at all times, except in building up light colonies in the spring by use of the division-board. I practice contraction sometimes during the honey-season, not by removing frames, but by an entirely different and I think a more natural and a better way.

H. R. BOARDMAN.

Your question is not precise. I suppose you mean to ask, "What is the largest number of L. frames you allow a colony at any time for brood?" etc. I allow a colony for the brood-chamber, all the L. frames they can fill with brood, no more. Ten frames filled with brood is my maximum. Whatever there is over is used for strengthening up weak colonies or forming nuclei. A variation from this rule is "neglect of duty" as far as I am concerned.

CHAS. F. MUTH.

I always try to get as many frames as possible filled with brood before the opening of the honey season, and have had 12 frames reasonably well filled by June 20. Most of my hives for comb honey hold only eight frames; and if a colony can do more than fill that number it must help a weaker neighbor. For extracted honey I have always allowed ten frames. Sometimes I allow the queen free access to three or more stories of empty combs, which I have known to result in twenty frames of brood.

JAMES A. GREEN.

In using the Langstroth frames in the brood-chamber I would never use more than eight, because we do not want the L. brood-chamber larger than that. We have found splendid results to flow from contracting that size of brood-chamber to five L. combs during that part of the season when the bees were storing surplus, and at the time the creation of more bees would not bring them into the surplus harvest as workers. The time to contract or expand a brood-chamber depends entirely upon the periods of your honey-flow. I disfavor young bees for wintering; also extremely full colonies for wintering.

JAMES HEDDON.

QUESTION 113.—*If you practice contraction, at what time do you contract?*

This question is answered by 112.

MRS. L. HARRISON.

I have never practiced contraction.

GEO. GRIMM.

I rarely use it except on new swarms, as given in answer to No. 112.

G. M. DOOLITTLE.

On putting on supers. I don't believe so much in contraction as some.

C. C. MILLER.

I do, and like it. I contract with a new swarm, in time of honey harvest.

A. J. COOK.

I contract to the number of combs needed in the spring, and give more as needed. I don't contract to secure surplus.

DR. A. B. MASON.

When they are placed upon their summer stands in spring, or when they commence gathering pollen and begin brooding.

L. C. ROOT.

Not until the season is well commenced, and a fair amount of stores secured for winter, and the bees are building new comb.

H. R. BOARDMAN.

Contraction does not seem to me to be suited to the needs of my locality. For comb honey I keep contracted pretty close all the time.

E. E. HASTY.

Here we don't practice it. We contract only when a colony is too weak; but this should not happen when one is up to the business.

P. L. VIALON.

I suppose this question refers to the contraction of the brood-nest, which I have practiced but very little, except when preparing bees for winter quarters.

O. O. POPPLETON.

I contract in the early spring by placing a duck cloth over the lower frames or brood-nest, to facilitate breeding, leaving a hole for bees to go above for honey.

R. WILKIN.

I contract the brood-chamber in spring only, in order to breed up. Reason, I want large colonies at the beginning of the season, and during the season I don't want to be obliged to feed in the fall.

CHAS. F. MUTH.

I don't practice contraction any further than to put the bees on to one tier of brood-combs, 8 combs. Do that when the bees are strong—that is, when there are bees enough to fill the brood-nest and a case of sections.

E. FRANCE.

We are opposed to contraction. Mr. Metelli (see answer to 111) answers for us, "To have colonies for honey in good order for the next spring you have to give them large hives, and to prepare them during the previous summer."

DADANT & SON.

See my answer to 112. You may rest assured that I practice contraction, and know by experience that it is one, if not the greatest improvement, in modern honey production, whether for comb or extracted honey, but especially for the former.

JAMES HEDDON.

Always at the time of hiving a swarm; generally as soon as a colony has swarmed, often before a colony has swarmed at the beginning of a honey-flow. With regard to the last two, and especially the last method, I am not altogether certain as to the advisability of contraction.

JAMES A. GREEN.

Sometimes when boxes are put on, but usually when the queen is removed or artificial swarms made if there are any such. We formerly reduced the number to five, when the queen was taken out, but have since preferred to leave in another. If contracted too much, the quality of box honey suffers, and I think there are more piece boxes at the

close of season. Our first contracting for comb honey was in the season of 1873 or 1874, and the swarms were brought down to four of our combs, 10½x16 inside.

P. H. ELWOOD.

QUESTION 114.—*How many pounds additional surplus do you think is gained by contracting?*

I do not know.

O. O. POPPLETON.

I have never had any experience in that line.

E. FRANCE.

With my method, no additional surplus.

DR. A. B. MASON.

Not an ounce, but more honey will be brought to the surplus box.

DADANT & SON.

I could not give an estimate. I think the gain pays for the trouble, and more.

A. J. COOK.

If by this question contraction during the honey-flow is meant, not enough additional to pay for the trouble.

MRS. L. HARRISON.

In some localities I have no doubt but that there is some gain by contracting; but here our colonies are so strong at the time of the flow of honey that there is no gain.

P. L. VIALLO.

Possibly as many pounds as they would store in the additional combs, say 15 or 20; but taken for a series of years, I'm not so sure they would store any more, and in any case it necessitates feeding usually.

C. C. MILLER.

Many stocks that would be lost if the number of combs were not reduced, are saved by contracting, and are in condition for gathering surplus. In such cases the gain equals the difference between entire loss and what proper management will secure.

L. C. ROOT.

I do not practice the manipulation in question. As excessive swarming is the main difficulty with me, I think (if I do not know) that getting an extra-large colony, and then crowding them above, would only make them swarm directly with no gain in pounds of honey whatever.

E. E. HASTY.

I don't believe that any additional surplus can be gained by contracting the brood-chamber during the honey season, unless the bee-keeper's time is worth nothing. Honey or sugar has to be fed again if a dearth or a cold wet spell follows the season, and honey or sugar has to be fed again for winter stores.

CHAS. F. MUTH.

I do not know, because I never weighed carefully to get at the exact number of pounds; but I get more surplus and less honey uselessly consumed by the bees; get that surplus in better and more attractive condition, and handle my colonies more easily and safely during the fall, winter, and spring, by practicing contraction.

JAMES HEDDON.

I have not practiced contraction long enough through good and bad seasons to answer definitely. I can recall instances where it seemed to me that contraction secured 25 pounds of honey more than would have been had without it. Doubtless this is more than could be expected on an average, but I feel very sure that contraction pays well when properly managed.

JAMES A. GREEN.

Contraction is now having a run. It is carried to extremes, and its benefits overestimated. With the inexperienced, and with honey-boards, particularly the queen-excluding board, it may make quite a

difference. In any case a part of the early honey that is usually stored in the brood-combs will be stored as surplus. This is the honey that bees usually winter best on.

P. H. ELWOOD.

Not any more, if you leave the colony as much as it ought to have. It may be different in other locations, but with me I find it safest to leave a colony all the white honey it has stored over and around the brood in an eight-frame Langstroth hive. Of course, if I should crowd them they would have to store part of this as surplus; but I do not find it safe policy here, as I have no fall honey to fill up on.

GEO. GRIMM.

In some seasons probably nothing is gained by any system of contracting the brood-chamber. The amount additional gained depends upon the season, strength of the colony, manner, and extent of contracting, etc. When honey is coming in steadily it can all or nearly all be forced into the surplus chamber for a period of about 20 days; but we must not lose sight of a most valuable fact, that hives or fixtures, or methods, however perfect, *will not produce honey*.

H. R. BOARDMAN.

Not any, if you call winter stores a surplus. Bees will store all the honey they can gather if they have sufficient room, no matter whether that room is in a nail-keg, barrel, old box hive, or one of the latest improved hives. All we accomplish by contraction is to get the most of the surplus, or the most of all of the honey gathered by the bees, stored in our neat sections, instead of in the body of the hive. If I have ever made it appear that bees would gather more honey according to their numbers where contraction was used, I wish to ask pardon, and correct the mistake. By contracting at the right time, or allowing contraction of the brood to be done by swarming, we save the amount of honey that an extra amount of brood would use, to go into our surplus. As this brood, when hatched into bees, would become consumers, this item is worth looking after.

G. M. DOOLITTLE.

Well, friends. I have been for a good many years rather of the opinion that contraction did not amount to very much, any way. Of course, colonies do well where the brood-nest has been contracted according to the latest and most approved theory; but I am afraid we lose sight of the fact that they also do well where no contraction is practiced. To make it a little plainer, I have seen a colony of bees build up, raise brood, and prosper at a tremendous rate, when they were in two-story Langstroth hives, with 10 frames below and 10 above. When more room was wanted they took it at the side or overhead, just as they chose. They did not have any dysentery nor spring dwindling, nor any thing of the sort; and I have seen this happen when colonies that were fussed up and fixed up did not do nearly as well. At the same time, I have known a tolerably fair colony that was raising brood at a very good rate, apparently killed by removing the quilt over them to put on a feeder. The openings made by turning up the quilt so as to give the feeder a place, permitted the warm air of the brood-nest to escape. They were found dead after a severe cold spell in the fore part of April. Other colonies that did not have the quilt over



them disturbed, stood the cold snap without any apparent injury. I am rather inclined to think that there are extremes both ways; but I believe a good nice dry worker comb is about as good protection as any sort of division-board. Perhaps you begin to think that I do not have any very decided ideas in regard to contraction, and I do not know but that you are about right.

#### HOW TO MAKE OUT AN ORDER FOR GARDEN SEEDS, ETC.

ALSO SOMETHING ABOUT DOING BUSINESS IN SUCH A WAY THAT IT WILL ADVERTISE ITSELF.

EVERY season it makes me feel sad to see the amount of paper and the amount of work that not only our customers but our clerks here in the office often use to make an order, or make out a bill for a few cents' worth of garden seeds. Now, please have a little faith in Uncle Amos, and let him convince you that he knows best. First suppose you want 9 papers of garden seeds. Almost all of you would commence:

One paper of Select Very Early Jersey Wakefield cabbage seed ..... 5 cts.

The next item would be in the same way, and so on for the whole nine. Some of the friends who are in a hurry, sometimes, instead of "one paper," *nine times*, use ditto marks. When you get to the 9th figure 5, one above the other, I suppose that many of you go to work and "add up" the 5's.

Now, friends, you are wasting paper and time fearfully; yes, and you are wasting *money* besides, because many of you forget that 10 packages of seed are furnished at 4 cents each, so our clerks will probably charge you *more* for 9 packages than they would for 10. Now, then, let me tell how I would do. Thus:

Please mail me garden seeds as follows: One paper each—Wakefield cabbage, Eclipse beet, Forcing carrot, Snowball cauliflower, Self-blanching celery, Pepper-grass, Grand Rapids lettuce, Banana melon, Silver King onion, Alaska peas, 10 papers at 4 cts., 40 cts.

You will notice in the above, that, instead of giving the long name of the article as given in the seed catalogues, I have given only just enough so there can be no mistake. "Wakefield cabbage" tells what you want just exactly as well as if you wrote out "Select Very Early Jersey Wakefield cabbage."

Now, where you order simply five-cent packages the matter is very easy, you see; but suppose you have discovered that it is a great deal cheaper to buy seeds by the ounce than to get it in five-cent packages—how then shall we do? The objections to saying "one ounce each of the following seeds" would be, that they are not all the same price. An ounce of one may be 10 cts., and another may be only 5 cts., and still another may be 25 cts., and so on. Well, this makes the matter a little more complicated, but it can be arranged so as to economize space almost as well as the other packages. I learned it in the jewelry business. The traveling runners whose bread and butter depended on speed and expedition would make a correct invoice of 100 or more items on a small piece

of paper, and they would do it in a very few minutes in the way I am going to show you. Now then: Suppose you are buying ounces as follows. Start your letter this way:

Mail me one ounce each of the following seeds:

|  |        |
|--|--------|
| <sup>5</sup> Eclipse beet, <sup>10</sup> Winningsstad cabbage,                           | \$ 15  |
| <sup>50</sup> Self-blanching celery, <sup>25</sup> Rawson's cucumber,                    | 75     |
| <sup>35</sup> Grand Rapids lettuce, <sup>15</sup> Danvers onion,                         | 50     |
| <sup>5</sup> Parsley, <sup>5</sup> Early Globe radish, <sup>10</sup> Lady-finger radish, | 20     |
| <sup>25</sup> Mikado tomato.   | 25     |
|  | \$1.85 |

Of course, half-pints, pints, and quarts and pecks, can be run together in the same way; also quarter-pounds and pounds. If you want to make your order neatly, I would take a catalogue and go through with a pencil, marking the amount you propose to order, on the margin, all the way from asparagus to turnip. When you have decided on every thing you want from a certain catalogue, then collect the 5c papers first. If there are only 9, you had better make it one more so as to get the 10 rate. After you have collected the papers, then collect the ounces. These two items alone will save a deal of time and paper; and instead of a long lot of additions, you will have simply a matter of multiplication. Do you ask how it is when you want *two ounces* or *three ounces*? Well, for two ounces you can make a separate item. For instance, "2 ounces Palmetto asparagus, at 10 cts. per ounce, 20 cts.;" but when it comes to 3 ounces, by all means order  $\frac{1}{4}$  of a pound. If you will just look at it you will notice that in most seed catalogues 3 oz. will cost you as much, and oftentimes *more*, than  $\frac{1}{4}$  pound. In fact, I am pained a great many times to see our clerks charge a customer more for 3 ounces of seeds than they would if the order had read  $\frac{1}{4}$  pound. When I remonstrate, they reply, "Why, he wanted only 3 ounces of seeds, and he sent the exact price according to the catalogue." Now, I do not like that sort of logic at all. I never saw anybody yet who would complain because you sent him *more* seeds than he asked for; and when a man sends money enough to pay for  $\frac{1}{4}$  pound of parsnip seed, he should have  $\frac{1}{4}$  pound, even if his order does read 2 ounces. You will notice by the catalogue that parsnip seed is 5 cts. an ounce, or 40 cts. a pound; and you will notice, also, on the first page, that we sell  $\frac{1}{4}$  lb. or  $\frac{1}{4}$  peck at peck rates; 2 ounces cost 10 cts.;  $\frac{1}{4}$  lb. costs 10 cts. Some of the friends still urge, that, when you give a man *just what he asks for*, that that is enough. My friends, if you want to build up a business, or if you want to glorify the Master, make it your business to give your patrons *more* than they ask for whenever such a chance offers. Why, it is just fun for me to give a man  $\frac{1}{4}$  pound of seed when he sent for and expected only 2 ounces; and I should not wonder a bit if our present large business has been built up a good deal in just that way. The great world at large has had ample experience in sending away their money and getting *less* than the printed advertisements promised,

or getting less than they expected. But there is a great open field—a big unexplored region—for business and happiness and peace of mind in giving not only *all* you agree to give, but “good measure, pressed down.”



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

#### THE CALF AND THE BEES, IN TWO ACTS.

We have 13 hives. My teacher is cross. She lives near us. We have a little calf; and next summer,



when we let her out, she will go by the hives and tip one over, and they will sting her nearly to death.



I have sent you these pictures. I drew them myself.

LOUIE MICHAEL, age 12.

East Buffalo, N. Y., Feb. 7, 1889.

Your drawings, friend Louie, are very good. We reduced them, and made them almost fac-similes of yours. What is a fac-simile? Well, that means a “make-like,” or something just like the original.

#### BEES HAVE ALWAYS PAID WELL.

My father had 48 stands of bees, but he has sold them all but 4. We left these to our renter, on shares. When we put them in the cellar they were heavier than ever before. We have rented our

farm, and we are packing up to move; but we mean always to keep bees wherever we go, for they have paid us well. We have taken GLEANINGS for so long I can't remember when we didn't take it. We like it very well, and we are going to keep on taking it, for we should miss it very much.

Traer, Iowa, Feb. 21, 1889. J. L. PROVIN, age 14.

#### A CRIPPLED BOY WHO HELPS PAPA.

I am a little crippled boy, 12 years of age. My pa has 63 stands of bees. I help him tend them.

Newbern, Ia. DAVID C. MALONE.

#### BROTHERS' BEES.

My two brothers keep bees, and have 11 hives. They keep them in the cellar. They carried them in their arms. My grandfather says that the bees in the cellar ought to be kept at 42 degrees in the winter. In warm days they make a great noise. We had six in the spring. The wheat crop was poor last year.

ROBERT DAWSON.

East Dayton, Mich.

#### PAPA'S WINTERING-CELLAR.

Papa winters his bees in the cellar. He commenced last spring with 10 swarms, increased to 24, and got 600 lbs. of extracted honey and 100 lbs. of comb honey in 1-lb. sections. Three hundred and fifty pounds was from mammoth clover, and the rest was from buckwheat. The cellar that papa keeps his bees in is a place dug out under the house, about 3½ feet deep, not plastered. Nothing was done to it but to bank up the house well. But he winters successfully in it.

BERTHA BOARDMAN, age 9.

Weston, O., Feb. 22, 1889.

#### HAULING BEES TWELVE MILES IN A TWO-HORSE WAGON.

My pa has 14 hives of bees, and I have one. The 14th of last May the levee broke, and on the night of the 14th pa hauled our bees 12 miles without breaking any comb. The 11th of August he brought them and 15 of grandpa's back to the bottom, without breaking or damaging the comb. To prepare them for hauling he nailed cleats over the entrances, then he set them in the wagon and packed clover hay all around them tight. We did not have a very big honey-flow last year. We got about 360 lbs. for home use. They have from 60 to 70 lbs. to the colony now. We are wintering on summer stands. They are all right so far. We use A. I. Root's Simplicity hives. I am an A B C scholar, and read GLEANINGS.

ABBIE HOSKIN, age 14.

Louisiana, Mo., Feb. 19, 1889.

#### HOW PAPA FEEDS BEES.

I am a little boy seven years old. I was paralyzed three years ago, and have never gotten over it entirely. I have a pony and a little saddle. I can go to town and get the mail, or any little thing that papa or mamma wants. We live a mile from town. My papa feeds bees two ways. One way he takes a little square piece of board and cuts small grooves in it, two of them crosswise, from corner to corner, one from top to bottom, and one from side to side. Then he takes a goblet, with the bottom broken off; fills it with sugar syrup; puts the board on it, and turns it bottom upward and sets it in the hive. The bees take up the syrup as it runs out in those grooves. But he likes the other way best. It is



this: Take out the empty combs; pour syrup over them; hang them back in the hive. Papa has 42 colonies. He has extracted once, and they are full again. He sells honey at 15 cents a pound, home market. We got some strong honey, described by S. G. Christol, page 851, from the white-top milk weed. I think the strong or hot part soon evaporates.

CLAY DILLERAY.

Milford, Tex.

The grooved-board feeder is illustrated and described under "Water," in the A B C of Bee Culture.

#### THROWING MUD, AND SHOOTING, TO BRING DOWN A SWARM.

Last summer papa got 100 pounds of honey from 12 colonies, and my brother-in-law got 60 pounds from only 2 colonies. Papa caught two swarms when he was extracting. He heard a lot of bees buzzing, and he looked up and saw a swarm. We threw mud at it, but it would not come down, and then papa sent me home after the gun. He fired both barrels at it, and I kept throwing mud, and at last it settled on a pile of brush in a ditch. Papa put a hive there, and at evening they went in it. My brother came down, and he, papa, and I went down to the hive and carried it to the apiary. We caught the other the same way.

DANIEL W. HIGGINS, JR.

South River, Md., Feb. 22, 1889.

Well, well! was it the mud-slinging or the shooting that finally induced the swarm to alight, or did the swarm settle when it got a good ready, regardless of either the mud or the shot? We suspect they got a good ready.

#### EXTRACTED SELLING HIGHER THAN COMB HONEY; HOW PA FASTENS FOUNDATION INTO WIRED FRAMES.

My pa takes GLEANINGS, and we are glad when it comes. I have a little brother, six years old. We go to school every day. My pa has 85 stands of bees, packed in clover chaff, outdoors. Pa says that he is going to extract more honey next summer than he did, as it sells better than comb honey. I help pa extract honey. I have been stung only two or three times in my life. Charley is afraid of the bees.

Pa fastens the brood foundation in the brood-frames with the heat of a common lamp. He sets the lamp on the table and lays foundation in the brood-frames and holds the frame over the lamp with his left hand so as to heat the tin wire and the foundation. Then he passes the finger of his right hand over the wire on top of the foundation so as to sink the wire into the foundation; and when it is finished it looks as if the wire were sewed through the foundation. We can fasten the foundation in cold weather as well as in warm. We did not get much honey last year, as it was too dry.

DORA KUNZ, age 8.

Linkville, Ind., Feb. 23, 1889.

You probably do nice work in putting in the foundation; but how your papa can heat the wire so that it will sink into the wax, without spoiling the foundation by too much heat, we do not quite understand. Is the foundation itself left as perfect after putting into the frame as before? Please tell us more about it in your next letter.

## MYSELF AND MY NEIGHBORS.

CONTINUED FROM ISSUE OF MAR. 1.

Cast me not away from thy presence; and take not thy Holy Spirit from me.—PSALM 51: 11.

**D**URING the sermon that followed the Sunday-school, this peace and joy I have told you of still poured into my soul. The closing thought of the sermon was something like this:

Some people seem to imagine that it is not in their power to turn to Christ, any more than it would be in the power of an individual who is lost in Mammoth Cave to find his way out. If no guide were near to direct his steps, his case would indeed be hopeless; but Christ Jesus stands ever ready to lead every willing soul from darkness to light. In fact, he has said, "I am the light of the world. He that followeth me shall not walk in darkness, but shall have the light of life."

Dear friends, I had unconsciously, as it were, reached the top of one mountain. I want to use here one verse and chorus of a familiar little hymn that expressed my state of mind at the close of that sermon:

The Savior comes and walks with me,  
And sweet communion here have we;  
He gently leads me by his hand,  
For this is heaven's border land.

O Beulah land, sweet Beulah land,  
As on the highest mount I stand,  
I look away across the sea  
Where mansions are prepared for me,  
And view the shining glory shore,  
My heav'n, my home for ever more.

Last Sabbath evening I listened to a minister who made the broad declaration that all humanity are seeking happiness. I thought at the time that his statement was open to a little question; but perhaps he was pretty nearly right. Well, if this is true, dear friends, suppose we consider for a moment human happiness. Many of you besides myself have discovered that it comes oftenest when we are not seeking it. It was a good deal against my inclination that I had decided to wait until the Sabbath was passed before resuming my travels. My reward had come unexpectedly. Perhaps part of it came because I refused to go with the boys who wanted to show me the natural attractions of the little town, but stayed inside of my room, and studied God's holy word all through the bright sunshiny morning. Jesus tells us, in that beautiful parable, that those who had been all their lives busy ministering to him were not aware of it at all. When he called them to their reward they replied, "Lord, when saw we thee a hungered or thirsty, and gave thee drink?" etc. Instead of *boasting* of what they had done, they had not thought it worth mentioning. A great blessing had come to me, simply because I was doing my duty, without any thought of reward. But I had been vouchsafed a taste of the waters of life that I presume I shall never forget.

Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4: 14.

And I here wish to leave my testimony, to



the effect that there is no enjoyment nor happiness in this world to be compared with it. Such seasons as these, however, are usually of brief duration; and while we are yet human, perhaps it will always be so. There is quite a temptation to skip the remainder of the events of that Sabbath day; but perhaps it might be profitable to consider how I came down from the mountain, as well as to relate how I unconsciously got up.

As the service closed, I felt sorry to know there were no more meetings till evening. At dinner I compared notes with the boys who had been seeking pleasure in the ways I have already mentioned. What should be done during the afternoon? I read awhile; and then feeling the need of exercise (or at least I thought I did) I decided to walk out a little by myself. The suggestion came into my mind, that I not

only needed some of the mountain air, for which the place is widely celebrated, but that, if I could find one of those springs at some quiet place there would be no harm to take a drink of the famed medicinal waters. Of course, I could wait until the morrow; but if I expected to get any marked benefit from the celebrated waters, it behooved me to get a drink as soon as possible, that I might be able to take many drinks before I was called upon to leave. Even in my boyhood I had always a great fondness for ginger pop, and mineral waters that owed their pungency to imprisoned carbonic acid. The pop of the cork and the foaming in the glass always had a certain fascination, and I must confess that the taste of these foaming drinks has always been more or less agreeable. I had been told that the water of Manitou Springs had a fashion of foaming and sparkling as it comes out of the ground—a foaming, sparkling draught from nature's own laboratory. I did not know exactly where the springs were located, but I thought there could be no harm in walking out along the railroad, all by myself, and so I started. The walk was very pleasant indeed—or, rather, it would have been pleasant had it been some other day than Sunday, for my conscience was making me feel a little uneasy. When perhaps a quarter of a mile from my boarding-place the

track ran into a tunnel. Conscience said it was time to go back; but curiosity pointed to the strange rocks which had been cut and chiseled in making an opening. After I got in a little piece I saw daylight from the other side, and I thought I would just look through. When I did so, I saw another tunnel, more wonderful still. Of course, I went through the last tunnel, and, sure, enough, right before me was one of those wonderful effervescing springs. Some benevolent (?) individual had built a pretty little summer-house over it.

Below is a picture of the spring as it met my view. In the distance is the white summit of Pike's Peak, where I had seen the snow blowing in the morning. The picture, however, is not from a photograph, and does not at all do justice to the mountains.

The summer-house built over the spring is very lifelike.

Some steps ran down to the sparkling spring, and a tin cup hung invitingly by a chain. Just then I noticed that not only young

men but women also were passing to and fro, evidently out that Sunday afternoon seeking happiness and recreation, or some sort of excitement. I thought I would take just one drink, and then go back quickly to my lodging-place. When almost to the brink of the spring I discovered in a room, close by, a gathering of ungodly people; and from the looks of the bottles and decanters, I judged the place was for the traffic in intoxicating liquors. Should I turn back, or go ahead and

taste the waters? Since I had got so far, I decided to take just a taste; but I began to feel very bad and uncomfortable. It seemed as if they were all looking at me, and saying, "There is that man out here this Sunday afternoon, who talked so well in the Sabbath-school. After all his talk, he has as much curiosity to see things, and just as much of a desire for a little excitement and stir, even if it is Sunday, as the rest of us."

I tasted the water, and dropped the cup hurriedly. Somebody has said, that "stolen waters are sweet." My young friends, don't you believe it. It has never been true in my experience. I noticed the sparkle of the gas as it came bubbling up from the water from the bottom of the spring,



THE UTE SPRING, MANITOU, COLORADO.



and the taste had a decided snap, like pungent soda; but I did not care very much for it then. I decided it was not worth the *cost* on that Sabbath afternoon. I didn't think at the time (but I did afterward) of the text, "Whosoever drinketh of the water that I shall give him, shall never thirst." Well, what was to hinder my retracing my steps as quickly as I could? Nothing; only, as I started to go back, something suggested (very likely it was Satan) that, if I climbed that big hill to regain the railroad track, I should be all in a sweat, and one ought not to look sweaty with exercise on Sunday. Before me was a smooth traveled road that led back to my hotel, without the *necessity* of climbing the hill to reach the track. It is true, this traveled road led through the *business* part of town; but I did not think so much about *that* just then. As I passed along the road I saw more and more people, who, it seemed, eyed me as did the others. Most of them were shabbily dressed. Some were smoking and swearing, and I had a sort of feeling that my presence on that street was something of an indirect encouragement to them to think it was *right* and *proper* to be seen on the streets on the Sabbath day. Pretty soon a path turned off into a quiet little grove, or ravine, beside the brook. This path, so far as I could see, went along almost parallel with the public road. "There," thought I, "I can take this path and thereby escape the crowd and their questioning gaze, and it will no doubt lead me just as directly, and may be *more so*, to my hotel." Do you remember how Christian, in Pilgrim's Progress, started off a little from the straight and narrow path, and, without actually knowing it, got further away? Well, it was so in my case. The path led down by some more springs, and, for some reason or other, I thought I would just taste the water of these springs—it wouldn't take more than a moment—and I wanted to see if it were all alike. Was it really so, that these were not as good as the first ones, or was it my guilty conscience that made it seem so? I met more untidy people, and pretty soon I found a wire fence intercepting my path. The owner of the ground, evidently not liking so many tramping over his lands, had *recently* made the fence. As soon as I saw it some thing said:

"Now, old fellow, you will be sure to tear your nice clothes before you get over that wire fence. You know you always have some mishap when you go off so on Sunday; and you may *depend on it*, you won't escape this time." I thought of the morning, and I felt feverish and nervous. Several times I had tried to walk slowly and sedately; but before I knew it I was rushing ahead again very much as A. I. Root does on week days. I would have turned back and retraced the path until I came to the highway again, but I was getting nervously impatient. How I did long for the protecting walls of the Mountain View House, or even to be so near its doors that no one would think I was guilty of strolling about on the Sabbath. I decided, that by being real careful, I could get over that wire fence, and not have my

clothes torn. I pressed down the top wire, carefully gathered up the coat-tails of my Sunday overcoat, and succeeded in stepping over the fence without a rag of my clothing touching a single barb. Then I decided to walk slowly and sedately the rest of the way, and that nothing should entice me to wander about any more during the afternoon. After I had gone a few rods I happened to look down at my polished boots. They were newly blacked, expressly for church and Sunday-school. Something caught my eye that troubled me at once. I reassured myself, however, by saying mentally it was only a *wide blade of grass* that had fallen across my boot. Nervously I undertook to brush off that "blade of grass." As I found it would not brush off, the sweat began to start on my forehead. One of my nice new boots (a pair that just cost \$7.00) was actually cut from ankle to toe, and was gapping open wide, showing my blue stocking underneath. I have heard that pickpockets sometimes carry a lance so sharp that it will cut open a pocket, without the owner being aware of it. Had a pickpocket suspected I carried money in my boot, I should have thought it was his work. How was it possible that that great cut was made without my knowing it? Oh, yes! When I lifted my last foot over that wire fence, I do remember a peculiar singing "zee-e-e-p," and that sound was made by one of those keen barbs as it cut my boot. I was near to the pastor's house. Perhaps they were watching me out of the window. May be some of them would come out to the door just as I came by, and find me sweaty, dusty, flushed, and uncomfortable, with a great gash across my foot. Satan whispered to turn around and go and get a shoemaker to sew it up before church time. Just then, however, I thought I could see where glimpses of Satan's cloven foot had been visible all the afternoon, and I said, very decidedly, "Get thee behind me, Satan." The minister's folks *did not* come out, and I was enabled to get safely to my tidy little room in the hotel; and when there I knelt by my bed and asked the kind Savior to forgive me for my folly of the afternoon. And that is the way, dear friends, I slipped away down in the "Valley of Humiliation" from that high pinnacle where it had been my pleasure to stand but a few hours before.

I had been asked by the pastor to take part in the young people's Endeavor Society at half-past six, before preaching services, and I was on hand, I believe, before anybody else. We have often been enjoined to "put our best foot forward." So far as that was concerned, however, I was trying to keep my best foot in the background, you may be sure. When the proper time came I gave in my testimony. But I was somewhat like a crippled soldier. The spirit that was with me in the forenoon was not gone, but it was a good deal dimmed. However, I went to bed feeling happy that the Sabbath day as a whole had not been so very badly spent.

I found that my train did not leave till 2:35 in the afternoon, on Monday, so you may be sure I was up bright and early, ready



to make the best of my time before leaving. On questioning in regard to the liveries, and what I could get a rig for, the landlord suggested, that, if I were used to walking, I might make the whole trip on foot, and thus save quite a little money. The two caves and the Rainbow Falls he thought I could make by noon, taking in the springs on the way, and the Garden of the Gods might be visited before the train left if I were not too tired. Can you imagine with what a light heart I started forth after my early breakfast?

The accompanying picture gives you another glimpse of Manitou. The building in



A GLIMPSE OF MANITOU.

the foreground is one of the fine large hotels. A pretty fountain plays in front of the piazza, on the lawn. A rustic bridge across the stream that comes from Rainbow Falls, and the caves I am about to describe to you, are in the mountain off to the right. Pike's Peak looms up in the background; in fact, Pike's Peak seems to be always before you, and every glimpse seemed to say to me that it could not be very far away.

I was down through the little village, and had a drink from the springs, almost before anybody else was stirring. The waters were much pleasanter than they

were the day before, but I was not very thirsty just then. Then off I went, as happy as a schoolboy when school is out, up the mountain side, for the Cave of the Winds. The road very soon began twisting amid the rocky cliffs, one way and then another, until one could hardly see many rods ahead. Then the cliffs towered away up toward the sky, in some cases leaning clear over the road, until it seemed as if we were in a land of giants. It was up-hill work; but what cared I, with the love of God in my heart? It seemed that morning just a *pleasure to climb*; and before the sun was fairly up I had made the two miles up the mountain-side, and

stood at the foot of the cliff whereon was found the Cave of the Winds. Now, it is a little funny, but this cave was discovered only three or four years ago by a band of Sunday-school boys. To keep them busy, and perhaps out of mischief, the Congregational pastor had organized what he called an exploring band; and the boys composing this band, when they had the leisure, devoted their time to exploring the mountains about Manitou. As I stood and gazed upward I saw in the side of a steep cliff, perhaps 500 feet above me, a fissure in the rocks. This fissure was a sort of crack where the mountain had split in two, as it were, leaving a space of perhaps a yard wide. Now, the rock was rough enough so the boys by reaching from one side to the other had climbed up in this fissure for a hundred feet or more; and away back, out of the sight of human eyes, either from below or above, they found the cave. I did not rest long before I commenced climbing the steps. Then a sort of sheep-path led up along quite a distance further. Then some rude stairs took me to the foot of the fissure. Wooden timbers were put across the fissure, and stairways took us up to the opening. See cut on next page. I knew before I started out, however, that the Cave of the Winds was closed at this season of the year: so after resting a while, and

trying to imagine how the boys felt when they reached this spot, by means of other ladders I ascended clear to the top of the opening, and stood nearly on the summit of the mountain. A good many people get dizzy when up here, and I sat down and meditated a while before I took what seemed to be really a perilous passage on the very edge of the cliffs. Still another narrow path wound up and up, until I reached the very summit of the mountain. The sun was just rising, and a refreshing breeze seemed very grateful after so much climbing. By my side was a little pyramid of stones. This



pyramid was the work of tourists, each one contributing a stone to it. Although I was panting for breath, I selected one also, and placed it near the top. A good many had left business cards, and some had scratched their names and addresses on the stones. I looked off toward the village, and there in plain sight was my hotel, Mountain View; but, oh how small and insignificant it looked! The landlord had, before I started, pointed out to me the Cave of the Winds; but as I looked from the hotel, all I could see was a few rough rocks that seemed not larger than a common-sized house. But

other cavern. Before I could get in, however, I had to go still further down the mountain to where the guide lived. He informed me they did not open till eight o'clock, and, sure enough, it was only just eight. The points the landlord said I could make by noon, I had already made, except going through the cave. Come to compare notes, the guide had been an Ohio boy, and, still further, he was brought up in the neighboring town of Akron. We were old friends in short meter. While he was lighting his lamps, and getting ready to go into the cave, I sat down on the steps, thinking I

had better economize my strength, although I didn't feel tired a bit. My eye glanced across between a couple of mountains, and there was Pike's Peak again, with the snow rolling and blowing.

"Mr. Snyder, they tell me it is *thirteen miles* to the top of that mountain over there. Why, it seems as if I could skip to the top of it in a little more than half an hour."

"Well, I think I can teach you a lesson if you care to look through our big telescope. It cost us about \$250, and therefore we are obliged to charge ten cents for the privilege of looking."

"Cheap enough, my friend. I want to see every thing you have that is worth seeing, and here is a five-dollar bill to cover expenses. While you are making your change I will look at Pike's Peak."

The instrument was very soon adjusted by his practiced hands; but before I put my eye to the glass he spoke:

"Mr. Root, I want you to tell me first if you can see any thing like a house on top of Pike's Peak, with the naked eye."

"Why, I think I could see a house if there were one, but there is surely nothing of the sort. It is just a scene of snow and blank desolation."

As I replied, however, I put my eye to the glass, and, lo and behold! There was quite a good-sized stone house on the peak—some outbuildings around it, a flag floating from the highest part of the house, and smoke coming out of the chimney, while the blowing snow made one fairly shiver as he looked through the glass. Of course, I uttered an exclamation of surprise, and then took another look with my naked eye. After the telescope had shown me what there was to be seen, I readily fixed my eye on a mere speck that I decided must be the house. And all at once the old mountain shoved back fully ten miles. You see, when my eye had learned to pick on something with *known dimensions*, things then assumed their proper size and distance.



ENTRANCE TO THE CAVE OF THE WINDS.

when I came to stand by them, they loomed up nearly a quarter of a mile high. Now, this is one reason why we can not comprehend the height of a mountain. There are no familiar objects with which to compare things, and our eyes deceive us. More of this anon.

After being satisfied with my view I started on the downward path, to take in the Manitou Grand Cavern. Going down hill is comparatively easy work. (Did you ever know it, boys?) It was not very long before I stood before the locked door of the



## RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

### THE DOVETAILED HIVE, AGAIN.

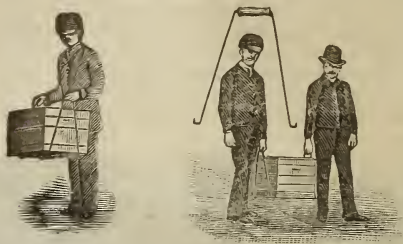
**T**HE new hive seems to be taking well, especially the dovetailed feature of it. The only serious criticism that has been offered is the dispensing of the bee-space *above* the brood-frames, in the hive, and, instead, putting it below. As many good friends, prominently among the number Mr. Heddon, thought we were making a mistake, we called a council comprising, as usual, A. I. R., the foreman, Mr. Calvert, and your humble servant. After discussing the matter in all its bearings, we saw our way, without any additional expense, to put the bee-space *above* the frames, and, of course, make the honey-board bee-spaced on one side only. To provide for a bee-space below the frames, we make what might be called a sunk or bee-spaced bottom-board, one side open for an entrance. This bottom-board is simply a cover, as shown in the engraving on page 189, with the projecting shoulder of one of the end cleats cut down so as to be made level with the board itself for an entrance. A  $\frac{3}{4}$ -inch strip is nailed on to close up the two sides. As a result of this change, the cover-board and bottom-board are exactly alike, except that they are cleated a little differently, and the bottom-board can be used as a cover, although the cover can not be used to answer the purpose of a bottom.

Fortunately it was not too late to change the bee-space from the bottom of the frames to the top. All who have sent for the Dove-tailed hive will receive them with the bee-space above the frames, and the bottom-boards bee-spaced as before explained. Perhaps it may seem a little strange that we should think of abolishing the bee-space in the first place. We had not then discovered a feasible plan whereby the space could be put above the frames, without an additional expense. In constructing this hive, the one feature of economy has been kept constantly in view, and we believe we have succeeded, as many letters at hand testify.

### HIVE-LIFTERS, AND CARRYING HIVES.

Some time ago I stated that we would give something more on the matter of carrying hives. In compliance with our request in GLEANINGS, quite a number sent in descriptions of the devices which they were using for carrying hives; but scarcely any of them seemed practicable for carrying the *Simplicities* or any other than some particular hive. They either cost too much or else were complicated. Mr. J. H. Griffith, of Kingsville, Ontario, Can., and G. L. Jones, \* of Grand Ridge, Ill., suggested a method of lifting hives, which I have modified somewhat. The engravings above explain the whole thing. It is simply a wire bail bent in the form shown in the engraving at the right, with hooks formed at the ends of the wires. For convenience in handling, a neat

bail handle is formed into the bend. It is very simple, and quickly made, and a pair of them can be made at a cost not to exceed 25 cents. You will notice that they will pick up not only the *Simplicity* hive itself, but the bottom-board also. The operation of attachment is very simple; push



WIRE BAIL FOR CARRYING HIVES.

the hooks into the soil, close to one side of the bottom, catch the beveled edge of the rim of the bottom-board, and the wire bail is caught. The other bail is attached in a similar manner. The apiarist can, either with or without an assistant, now lift up the hive. If the colony is a heavy one, and there are many to be moved, it would be advisable, of course, to employ an assistant, as shown in the right in the engraving above. If, on the contrary, the hive is not a very heavy one, he can, without very much difficulty, handle it as shown at the left. Perhaps it may be urged that it is almost as handy to put the fingers under the bottom-board; but if you consider a moment, you will see that it is not a very easy task to lift a burden when the body is stooped clear over in an awkward position. One can handle a much greater weight in an upright or nearly upright position, as shown in either of the figures above, than he can when the body is inclined horizontally. But the bail is a greater convenience when there are two to carry the hives, because then the palms of the hands are not twisted out of their natural position. The two figures were taken from a photograph.

To test these hive-carriers, Mr. Spafford and I attached them successively to several chaff hives, which, you are aware, are considerably heavier than the ordinary *Simplicity*. We found we could lift them with ease, and carry them to any place desired.

As they can be used on any hive with tight or loose bottom-board, I think they may prove a great help. The time is now approaching when it will be necessary to carry the bees out of the cellar; and to accommodate those who do not care to make them, we will furnish them for 25 cents per pair, or 10 cents extra when sent by mail.

P. S.—Since writing the above I discover, quite by accident, that one Wm. K. Deisher, of Kutztown, Pa., illustrated and described something very similar in GLEANINGS for 1883, page 607. Mr. D.'s implement was made of  $\frac{3}{4}$ -inch iron, rather heavier than necessary. That described above is made of ordinary bail wire, such as is used for pails. Mr. K. says it is very handy, and that two boys can carry even a chaff hive about with ease.

\* Mr. Jones, in a letter, says he carried into the cellar over 100 hives with such a device.



# GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,  
EDITOR AND PUBLISHER,  
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1889.

Wherefore do ye spend money for that which is not bread,  
and your labor for that which satisfieth not!—ISA. 55:2.

## THE "SCIENTIFIC LEGERDEMAIN" STORY AGAIN.

The "scientific legerdemain" story, see page 81, now comes to us in the columns of the *Register*, Troy, Pa., and they copy it from a paper called the *Washington Star*. Will those of our readers who are acquainted with either of the papers please call their attention to our article alluded to above?

## DIMENSIONS OF LANGSTROTH FRAMES—SEE P. 69.

Friend Alley asks why I should send to Mr. Langstroth for dimensions of frame to the L. hive, when I already had the dimensions in Langstroth's book. It was not only the *dimensions* I asked for; but I asked friend Langstroth, while he was visiting Samuel Wagner, something like 25 years ago, to send me a sample frame by express, just as he would have the frame. I wanted to know the dimensions of the different pieces, the way in which they were put together, the kind of nails to be used, and all about it; and I wanted one made according to his latest ideas in regard to the matter, for the frame at that time had been already a good many years before the public.

## THE FRUIT-PRESS AND VEGETABLE-STRAINER AS A HONEY-EXTRACTOR.

OH dear me! I entirely forgot, in my description on page 130, to mention that the above machine would answer for pressing honey out of the comb. In transferring from old box hives, if you have bits of comb containing honey just squeeze the honey out with the press, then put the wax in a bag by itself, to be squeezed after boiling. We are indebted to our good friend Thomas B. Blow, of England, for the suggestion. In fact, he calls it, in his price list, the "*honey-squeezer*," and he says it is a most useful article for the purpose. By the way, friend Blow sends out a very complete and comprehensive catalogue, 65 pages, of bee-keepers' supplies.

## GLEANINGS MATTER, AND SOMETHING FOR THOSE WHOSE ARTICLES HAVEN'T BEEN PRINTED.

BEFORE us is a great heap of GLEANINGS matter, most of it excellent, and, as a matter of course, acceptable, but it hasn't appeared in GLEANINGS yet. Why? because we haven't room, although our journal is now enlarged to 44 pages. Many of the communications show evidence of painstaking care, but we fear only a small portion of them can be used. We are going to try to use the best part of them, however. If, therefore, you see the introduction and the tail end of your carefully worded and well-connected communication chopped off, don't feel hurt. Flowery introductions and appropriate "windings up" are not acceptable. We want

no apology for "inflicting" the readers of GLEANINGS with another article, but we want you to commence saying what you have to say at once. Complaints are already coming in because we are using the "other fellow's" articles, not so meritorious as some we haven't used. Please remember, it is our *privilege* to be the judge, and that we do fairly well is evidenced by our large and increasing subscription list. Please remember, too, that the circumstances are such that the rule of the "survival of the fittest" can not always be applied, although we try to use the best.

## THE SILO AND ENSILAGE, BY PROF. COOK.

THE above is the title of a little book of 31 pages of reading-matter, written in Prof. Cook's happiest vein; in fact, while you read, those of you who have heard him at our institutes can imagine you hear the sound of his voice, and see the enthusiasm shining from his face. I have long been wondering why we did not have a book on ensilage, and one written by somebody who did not have the machinery for sale. Prof. Cook recommends the silo because he thinks it is going to be a great boon for farmers; and, so far as I can learn, I think he is right. The only criticism I have to make is the one I made in regard to Dr. Miller's book—a lack of engravings. I confess that I do not even now understand how the foundation of the silo is made, and I have read it several times over, while a simple rude drawing or diagram would make it plain to a busy laboring man, without taking much time or mental effort. I sincerely hope we may have a revised edition soon, with some pictures. The price of the book is 25 cts., and the size of the pages is 3½ x 5½. If more convenient you can order from us instead of from the author.

## AIR-SLACKED LIME, IN CONNECTION WITH MANURE, AS A FERTILIZER.

UNTIL last season we had always had more or less trouble with club foot in our cabbages, and I began to feel considerably worried about it. Peter Henderson tells us, however, in his book, "*Gardening for Profit*," that lime or bone dust has proven to be a sure remedy with him. Now, inasmuch as we had seen club foot on some little plants in our plant-beds over the "new agriculture," we decided to give these beds a good dose of lime. Well, one day, when I was not around, the boys decided that they could kill two birds with one stone by raking in the guano and lime at one operation. When they came to mix the two together, however, with a sieve, their olfactories were greeted with fumes of ammonia that were almost like a dose from a smelling-bottle. However, they sifted the mixture over the ground and raked it in, and said nothing about it. When those cabbage-plants came up they had such wonderful vigor, and such a rich dark green, that I made quite a stir about it, and asked for further particulars as to the amount of guano, and how they did it. Then came out the above story. We tried it again with like results. I communicated the matter to W. J. Green, of our Experiment Station, Columbus, and he advised me not to put it in print until it had been more thoroughly tested. He succeeded in the same way, by mixing pulverized and sifted poultry manure with lime instead of guano. No club foot has ever appeared in our plant-beds since we adopted the above. But this is not all. Last fall, our neighbor, who deals in lime for plasterers' use, informed me

that he had forty or fifty barrels that had become so much air-slacked by the damp weather that he would sell it out to me cheap. By the aid of a manure-spreader we covered our richly manured lots with the lime until it looked white. We immediately harrowed it in and put on cabbages. The result has been good every time. The lime seems to have a remarkable effect in setting free the ammonia from stable or other manure so that it is available to the plants. But my impression is, that lime alone, without any manure, amounts to but little as a fertilizer. Now, besides liberating the ammonia it has another office. Our heavily manured soil is full of angle-worms; in fact, I have been troubled because it seemed to me they must owe their fatness and great size to the rich manure I have been buying around town. Well, in the fall we gave several plots a heavy dressing with slacked lime, and then plowed it into lands with deep dead-furrows between, to carry off the winter rains, so we could work it quickly in the spring. Well, after the first good rain, great fat angle-worms were found in those dead-furrows, dead, in such quantities that they could have been gathered up by the handfuls. The lime killed them. They crawled out in the dead-furrows; and the lime water, as it washed down, fixed them in good shape to give off their ammonia. This matter is already partly understood, as I have already noticed by the agricultural papers; but I am quite certain that it is not fully understood and appreciated in plant-beds and in greenhouses.

#### OBITUARY.

WE are pained to announce that Mr. Wm. H. Shane, who has been, perhaps, the most prominent raiser of comb honey in Medina Co., died on the 7th inst. Shortly after I succeeded in securing such large crops of honey by the use of the extractor, as mentioned in the introduction to the A B C book, Mr. Shane became interested in bees, visited me repeatedly, and asked me so many questions that I began to think that, if he remembered all my answers, he would know all I knew, any way. He was an earnest student, and soon became master of almost all that was known on the subject of bees. From the first he secured profitable crops of honey. Last season, and the season before, were no exceptions. Mr. Shane had a nice crop of honey, put up in beautiful shape, when almost every other bee-keeper in the land failed. While we lament his death, we rejoice to know that, like friend Raitt, while he loved his bees he loved his Savior more; and when the call came he was ready to go.

## SPECIAL NOTICES.

We now have Dadant's Langstroth Revised, and can send them out by return mail. Price \$2.00. By freight or express, 15 cts. less.

160 SIMPLICITY ALL-WOOD BROOD-FRAMES FOR \$1.75, AT HIGHLAND MILLS, ORANGE CO., NEW YORK.

Here is a chance for some one in that vicinity. Who speaks first?

#### POULTRY NETTING AND FENCING.

We call the attention of our readers to our advertisement of netting and fencing, on the inside cover page of this number. Notice that prices are still lower than last year. We shall be pleased to mail a special 16-page netting and fencing catalogue to any one requesting it.

#### REDUCTION IN THE PRICE OF THE FIVE-PRONGED GARDEN-WEEDER.

The above implement is now furnished for 10 cents instead of 15, as formerly. If wanted by mail, add 7 cents for postage and packing. These are retinned, to prevent rusting, and we think it pays to have half a dozen of them hung up in convenient places about our grounds.

#### CHOICE COMB HONEY AT 18 CTS. PER LB.

We have about 1000 lbs. of very choice comb honey in  $4\frac{1}{4} \times 4\frac{1}{4}$  sections, 7 to foot, put up 28 sections in a case, net weight of which is about 23 lbs. We offer it in single-case lots for 19 cts. per lb.; 5-case lots or more, 18 cts. per lb. It was produced by our neighbor W. H. Shane, who has so recently passed to his eternal reward.

#### 12-INCH FDN. MILL FOR SALE IN CANADA.

We have at Cheltenham, Ont., one of our late 12-inch fdn. mills, sent from here a year ago, and has been used almost none. It is just as good as when new. We will sell it for \$30.00. The duty on mills to Canada is 30%, so you will make a saving of \$9.00 by buying this machine, besides the transportation charges from here there. Who will be the first to speak for it?

#### DISCOUNTS FOR GARDEN SEEDS, POTATOES, ETC.

As we are beginning now to sell a good many more seeds by ounces, pounds, pecks, and bushels, than formerly, we have decided to make the following discounts on large orders. But please bear in mind that this does not apply to five-cent packages of seeds. For all else in our seed catalogue we will allow a discount of 5 per cent on all orders of \$5.00 or over; 10 per cent on all orders of \$10.00 or over; 15 for 15 or over; 20 for 20, and so on up to 25 per cent off for \$25.00 worth or any larger quantity. In consequence of the great plenty of nice potatoes in our vicinity at the present time, we will, from this date on, allow a discount of 5 cts. per peck, or 25 cts. per bushel from prices given in our seed catalogue.

*Later.*—Since the above was written we have purchased two large lots of Burbank and Beauty of Hebron potatoes, suitable for seed, which we offer at 50 cts. per single bushel, or only 40 cts. in lots of five bushels or more.

#### OUR MARCH 1ST CATALOGUE, 68TH EDITION.

This has been increased in size to 44 pages by the addition of a rose-colored cover, thus giving room for more matter, and adding to its appearance a little more attractiveness. A careful observer will notice a great many changes over former editions, especially in the matter of hives. There are very few changes in prices, except in the Counter Store department, to which are also added a great many new cuts. Three pages relating to hives are entirely re-written, also the matter relating to sections; likewise that relating to circular saws, hive and section machinery. Our \$25.00 saw-table is advanced to \$30.00. Thin flat-bottom fdn. is reduced to 55 cts. per lb., and where it is taken in 25-lb. boxes the price is only 50 cts., and we furnish Vandusen's make, in sheets  $16\frac{1}{2} \times 28$ , or  $17 \times 30$ . We shall be pleased to mail this catalogue to any of our readers requesting it; and if you have any bee-keeping friends and neighbors we will mail them a copy also, if you add to your request their name and address.

#### CLEVELAND'S ALASKA PEA.

I thought I had got through for the season mentioning all new things in the way of garden-seeds; but a notice of the Alaska pea, by our good friend A. C. Kendel, has reminded me of something:

The A. B. Cleveland Co. CLEVELAND, OHIO, June 26.  
Gentlemen:—In reply to yours of the 23d, we would say the Alaska peas were given to a number of our most careful growers, and the reports are as follows: Planted at the same time, and on equal quality of soil, the Alaskas in every instance were from TWO TO FOUR DAYS EARLIER than any other variety, and were as good as any in quality. We predict for the Alaska a leading place among the first early peas.

A. C. KENDEL.

See also the following from the originator of the Chartier radish:

ALLEGHENY CITY, PA.  
I made two personal trials of Alaska peas this season—an early and a late sowing, and in both cases with similar results. In my trials I planted them with Landreth's Extra Early, First and Best, and Rural New Yorkers. In habit I find them of about the same height as the very extra-early varieties, but more slender in the stalks, and lighter green in foliage. They are in bloom nearly a week earlier than the others, and MA-



TURED FOUR DAYS SOONER. Crop all came in at two days' picking. Slightly more prolific than the others; quality very good. W. C. BECKERT.

In addition to the above we raised the finest patch of peas last year by sowing the Alaskas, that I ever saw or ever raised anywhere. They ripened up so nearly at one time that we cleared the ground at once and put cabbages in their place; in fact, the crop matured so suddenly—so much all at one time—that we were obliged to take it in wagonloads to towns to dispose of it. In fact, we had bad luck with peas, just about as we had bad luck with early potatoes. Did I never tell you about our bad luck with potatoes? Well, we expected 25 bushels from a little patch, and got over 100. We had so many Alaska peas that we could not sell them in Medina, and we could not sell them in the country towns, and so they went to seed, and we have now several bags full of beautiful seed—no bugs nor any thing of the sort. The pods are remarkable for their fine dark-green color, and this color holds longer after they have been picked than any other pea we have ever tried. Price, per packet, 5 cts.; per pint, 10 cts.; per peck, \$1.50; per bushel, \$5.00. If wanted by mail, add 8 cts. per pint for postage.

### PRICE LISTS RECEIVED.

C. D. Duvall, Spencerville, Md., sends us a 12-page list of bees, queens, poultry, potatoes, and buckwheat.  
G. L. Tinker, New Philadelphia, Ohio, sends us his price list of hives, sections, bees, etc.  
C. M. Dixon, Parrish, Ill., sends us an 8-page list of poultry and bee-supplies.  
J. T. Wilson, Little Hickman, Ky., mails us his list of Italian queens.  
S. S. Jordan, Hiram-sburg, O., sends us an 8-page list of bees, poultry, and ferrets.  
W. H. Bright, Mazeppa, Minn., sends us his 20-page list of apian supplies.  
We have just printed for A. F. Bright, Mazeppa, Minn., a 16-page price list of poultry, bees, etc.  
H. P. Langdon, East Constable, N. Y., mails us a 4-page price list of bees and queens.  
W. W. Bliss, Duarte, Cal., sends us his list of bee-keeping supplies, printed in the shape of a newspaper column, 3 x 28.  
J. Lingenfelter, Akin, N. Y., sends us a 12-page list of queens and bees.  
John Nebel & Son, High Hill, Mo., send us their price list of Italian bees and queens.  
S. P. Yoder, East Lewistown, O., sends out a list of poultry and Italian bees.

### CONVENTION NOTICE.

The annual meeting of the Western Ontario Bee-keepers' Association will be held in the Foresters' Hall, Chatham, March 20th and 21st, 1889. Come and bring your friends with you, as great preparations have been made for this meeting. The president of the O. B. K. A. will be present.

N. SMITH, Secretary.

## FOR SALE CHEAP.

One second-hand Barnes saw with scroll attachment, in good order. One large Pelham fdn. mill, but little used; 300 good combs in L. frames.  
6-7d GEO. E. BOGGS, Waynesville, N. C.

## APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.  
SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,  
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

CORNS A SURE CURE. 15c, prepaid. Address  
5-12db T. G. ASHMEAD, Williamson, N. Y.

## VIRGIN QUEENS.

The bulk of the traffic in queens in the near future will probably be in "Virgins." Every person sending direct to the office of the *Canadian Bee Journal* one dollar for one year's subscription (either renewal or new), in advance, will receive a beautiful virgin queen (value 60 cents), as soon as possible, in the season of 1889. Queens will be sent in the same rotation as each is received. American currency, stamps, and money orders received at par.  
THE D. A. JONES CO., BOSTON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

## PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

|                    | Mar.   | Apr.   | May.   | to Oct. |
|--------------------|--------|--------|--------|---------|
| Select tested..... | \$4 00 | \$3 75 | \$3 25 | \$2 75  |
| Tested.....        | 3 00   | 2 75   | 1 75   | 1 50    |
| Untested.....      |        | 1 25   | 1 00   | 1 00    |
| 6 Untested.....    |        | 5 50   | 5 00   | 4 50    |
| 12 Untested.....   |        | 9 50   | 9 00   | 8 50    |

Contracts taken with dealers to furnish queens by the week at special rates. Address  
5-21db J. P. CALDWELL, San Marcos, Tex.

In responding to this advertisement mention GLEANINGS.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.  
See advertisement in another column.

POTATOES. Four choice new varieties, SUMMIT, FEARNUGHT, DELAWARE, and FOOTATUCK, 40 eyes of each, postpaid \$1.00. I have mailed potato-eyes as far as Wash. Ter., and never had a report of failure. A collection of RARE SEEDS, postpaid, 30c. Send now for catalogue of SEEDS, PLANTS, BEES, and QUEENS. 5-6-7d

CHRISTIAN WECKESSER,

Marshallville, Wayne Co., Ohio.

In responding to this advertisement mention GLEANINGS.

NO. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50; No. 4, \$1.25; No. 5, \$1.00; No. 6, \$.65; Knife, \$1.15. On receipt of the above price, smokers and knives will be sent postpaid per mail. Descriptive circulars will be sent on receipt of request card. Binzham & Hetherington smokers and knives are staple tools, and have been used ten years without complaint, and are the only stovewood-burning clear-smoke bee-smokers; no giving out, no fussing, no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abromia, Mich.

In responding to this advertisement mention GLEANINGS.

FOR SALE.—5 colonies of Italian bees, in Langstroth hives, cheap. Write for prices.  
6-7d J. MATTOON, Atwater, O.

EGGS. Minorca and P. Rock. This yard headed by a 10½-lb. first-premium bird, \$1.00 per 13. Vegetable plants in season by mail or express.  
6d R. J. TOWNSEND, Sassafras, Md.

INDUSTRIAL Hives and Apiarian Supplies. Purc. I. Queens, Bees, S. C. B. Leghorns, Bronze Turkeys, Toulouse Geese, and M. G. Carp. Free list. J. W. CLARK,  
5-9db Clarksburg, Mo.

EARLY Untested Italian Queens, 75c. each.  
6d YOUNG G. LEE, Charlotte Harbor, Fla.

## BEES FOR SALE!

Colonies, Nuclei, Queens (Tested and Untested), at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,  
Columbia, Tenn.

In responding to this advertisement mention GLEANINGS.



## Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.



